L Number	Hits	Search Text	DB	Time stamp
-	35892	(606/).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 08:52
-	725	(607/98,101).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 08:53
-	574	(601/2).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 08:53
-	36697	((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 08:53
-	20355	(((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 08:54
-	4125	((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 10:48
-	3315	(((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 10:48
-	2876	((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 09:25
-	768	(((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6) and steer$8	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 09:25
-	716	((((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6) and steer$8) and ablat$6	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 09:31
-	715	(((((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6) and steer$8) and ablat$6) and (beam or rod or stick or wire or control)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 09:33
-	716	(((((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6) and steer$8) and ablat$6) and (beam or rod or stick or wire or control)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 10:49

-	636	((((((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6) and steer$8) and ablat$6) and (beam or rod or stick or wire or control)) and (rf or radio$ or microwave)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 09:35
-	633	((((((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6) and steer$8) and ablat$6) and (beam or rod or stick or wire or control)) and (rf or radio$)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 10:49
-	526	((((((((((606/).CCLS.) or ((607/98,101).CCLS.) or ((601/2).CCLS.)) and (catheter or tub$4 or sheath or cannula or conduit)) and (ablat$8 or cauter$6)) and (flex$6 or steer$6 or bend$6 or deflect$6)) and flex$6) and steer$8) and ablat$6) and (beam or rod or stick or wire or control)) and (rf or radio$)) and (spring or coil or helical or helix)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 10:49

-	171	(US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB	2003/02/21 10:42

-	89	((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111619-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:06

-	55	((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020112610-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or US-20020091427-$ or US-20020087208-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 10:47

-	50	(((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020098726-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 11:02

-	13	((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 11:02

-	2	("6102886").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:58
-	2	(("6102886").PN.) and (energ$3 or source or generat$4 or power or supply)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:59
-	2	(("6102886").PN.) and (energ$3 or source or generat$4 or power or suppl$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 12:59

-	171	(US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB	2003/02/21 13:06

-	146	((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:07

-	77	(((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128038-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:15

-	76	((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:15

-	50	((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:15

-	48	(((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:15

-	47	((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:15

-	29	(((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:03

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-	20	BERUBE-DANY and (lesion od ablat$6 or formation or continu$5 or deflect$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:44
-	6	(("5083565,") or ("5281218,") or ("5403311")).PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 13:44

-	31	(((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111626-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or US-20020091427-$ or US-20020087208-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:31

-	28	((((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:16

-	23	((((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020099725-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or US-20020091427-$ or US-20020087208-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:11

-	11	((((((US-6522930-$ or US-6517568-$ or US-6514249-$ or US-6514246-$ or US-6508765-$ or US-6506189-$ or US-6500174-$ or US-6500172-$ or US-6497711-$ or US-6490474-$ or US-6482203-$ or US-6477396-$ or US-6475213-$ or US-6474340-$ or US-6471699-$ or US-6471697-$ or US-6471696-$ or US-6464700-$ or US-6456864-$ or US-6456863-$ or US-6454766-$ or US-6447507-$ or US-6447506-$ or US-6447504-$ or US-6428537-$ or US-6423055-$).did. or (US-6416510-$ or US-6405078-$ or US-6405067-$ or US-6402746-$ or US-6385472-$ or US-6379352-$ or US-6379351-$ or US-6371955-$ or US-6319250-$ or US-6314962-$ or US-6293943-$ or US-6287301-$ or US-6283960-$ or US-6264654-$ or US-6261311-$ or US-6258086-$ or US-6251128-$ or US-6245068-$ or US-6245067-$ or US-6245061-$ or US-6241724-$ or US-6238390-$ or US-6238389-$ or US-6231585-$ or US-6231570-$ or US-6214002-$ or US-6212426-$).did. or (US-6206831-$ or US-6200310-$ or US-6198974-$ or US-6190382-$ or US-6183469-$ or US-6163716-$ or US-6129724-$ or US-6126682-$ or US-6126654-$ or US-6122549-$ or US-6120496-$ or US-6119041-$ or US-6102886-$ or US-6090104-$ or US-6088614-$ or US-6086581-$ or US-6078830-$ or US-6076012-$ or US-6073051-$ or US-6064902-$ or US-6063080-$ or US-6051008-$ or US-6032077-$ or US-6030382-$ or US-6001093-$ or US-5993462-$ or US-5992418-$).did. or (US-5957961-$ or US-5951471-$ or US-5916213-$ or US-5891135-$ or US-5891133-$ or US-5885272-$ or US-5873865-$ or US-5871525-$ or US-5855577-$ or US-5800428-$ or US-5797905-$ or US-5782900-$ or US-5782828-$ or US-5782824-$ or US-5769847-$ or US-5743905-$ or US-5730741-$ or US-5728144-$ or US-5722972-$ or US-5718702-$ or US-5715817-$ or US-5702433-$ or US-5685878-$ or US-5643255-$ or US-5545200-$ or US-5531677-$ or US-5496305-$).did. or (US-5370678-$ or US-5368592-$ or US-5363861-$ or US-5334207-$ or US-5327905-$ or US-5308324-$).did. or (US-20030028188-$ or US-20030028187-$ or US-20030028185-$ or US-20030018330-$ or US-20030014049-$ or US-20030009095-$ or US-20030004509-$ or US-20030004505-$ or US-20030004439-$ or US-20020198550-$ or US-20020198521-$ or US-20020198520-$ or US-20020193790-$ or US-20020188289-$ or US-20020183738-$ or US-20020183729-$ or US-20020173785-$ or US-20020173784-$ or US-20020169472-$ or US-20020165537-$ or US-20020165534-$ or US-20020165533-$ or US-20020165448-$ or US-20020161422-$ or US-20020156530-$ or US-20020139379-$).did. or (US-20020138075-$ or US-20020133148-$ or US-20020128640-$ or US-20020128639-$ or US-20020128636-$ or US-20020115994-$ or US-20020111618-$ or US-20020107511-$ or US-20020099364-$ or	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:17

-	38	("1207479" | "1652327" | "4245624" | "4731049" | "5041085" | "5056526" | "5098412" | "5156151" | "5236413" | "5263493" | "5273535" | "5306245" | "5352192" | "5370675" | "5439006" | "5482037" | "5487385" | "5500012" | "5549661" | "5637090" | "5672174" | "5688267" | "5702438" | "5709224" | "5722403" | "5730127" | "5738683" | "5782899" | "5797903" | "5800482" | "5800484" | "5830213" | "5836874" | "5840076" | "5846238" | "5846239" | "5853411" | "5863291").PN.	USPAT	2003/02/21 14:30
-	23	(("1207479" | "1652327" | "4245624" | "4731049" | "5041085" | "5056526" | "5098412" | "5156151" | "5236413" | "5263493" | "5273535" | "5306245" | "5352192" | "5370675" | "5439006" | "5482037" | "5487385" | "5500012" | "5549661" | "5637090" | "5672174" | "5688267" | "5702438" | "5709224" | "5722403" | "5730127" | "5738683" | "5782899" | "5797903" | "5800482" | "5800484" | "5830213" | "5836874" | "5840076" | "5846238" | "5846239" | "5853411" | "5863291").PN.) and lesion	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/02/21 14:31

16/3,KWIC/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010449083 **Image available**
WPI Acc No: 1995-350400/199545
XRPX Acc No: N95-261234
Vascular cardiac mapping and ablation catheter **- allows individual electrodes, of number provided on surface of distal working** catheter **area, to be connected to one or more receiving/recording/display devices in any desired pattern enabling signals from tissue area of interest**
Patent Assignee: AVITALL B (AVIT-I)
Inventor: AVITALL B
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5454370	A	19951003	US 93161916	A	19931203	199545	B

Priority Applications (No Type Date): US 93161916 A 19931203
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5454370	A		6	A61B-005/04	

Vascular cardiac mapping and ablation catheter - ...
...**allows individual electrodes, of number provided on surface of distal working** catheter **area, to be connected to one or more receiving/recording/display devices in any desired pattern enabling signals from tissue area of interest**

...Abstract (Basic): The **catheter** comprises a main **catheter** or sheath having a **flexible** section disposed at a distal portion having a distal **catheter** working area. A number, e.g. 2 to 6, of spaced-apart ring electrodes carried by the distal **catheter** working area overlap radially in a chevron design and in a plane perpendicular to a central axis of the working area and a number of...

...ADVANTAGE - Precise location of localised cardiac activity signals regardless of **direction** of propagation wavefront to create linear **continuous lesions** .

...Title Terms: **ABLATE** ; **CATHETER** ;
?

18/3/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015005764 **Image available**
WPI Acc No: 2003-066281/ **200306**
Related WPI Acc No: 1995-223538; 1996-401428; 1998-178372; 2000-012719; 2000-104863; 2001-513528
XRPX Acc No: N03-051346
Steerable catheter **for medical applications e.g. in coronary sinus, has pre-curved distal portion away from** deflectable **distal section located at distal end of** catheter **main structure**
Patent Assignee: DAIG CORP (DAIG-N)
Inventor: OCKULY J D
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6458107	B1	20021001	US 93106383	A	19930813	200306 B
			US 95371849	A	19950112	
			US 97996887	A	19971223	
			US 98146857	A	19980903	
			US 99440631	A	19991115	

Priority Applications (No Type Date): US 99440631 A 19991115; US 93106383 A 19930813; US 95371849 A 19950112; US 97996887 A 19971223; US 98146857 A 19980903
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6458107	B1		10	A61M-025/00	Cont of application US 93106383 Cont of application US 95371849 CIP of application US 97996887 CIP of application US 98146857 Cont of patent US 5423772 Cont of patent US 5549581 CIP of patent US 5984909 CIP of patent US 6001085

18/3/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014847964 **Image available**
WPI Acc No: 2002-668670/ **200272**
XRPX Acc No: N02-529029
Steerable **bidirectional electrode** catheter **having a control handle housing a pulley and piston mechanism for manipulating the distal tip of the** catheter
Patent Assignee: BIOSENSE WEBSTER INC (BIOS-N); NGUYEN F (NGUY-I)
Inventor: NGUYEN F
Number of Countries: 028 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1245245	A2	20021002	EP 2002252284	A	20020328	200272 B
US 20020143378	A1	20021003	US 2001822087	A	20010330	200272
JP 2002331037	A	20021119	JP 200296568	A	20020329	200306
US 6522933	B2	20030218	US 2001822087	A	20010330	200317

Priority Applications (No Type Date): US 2001822087 A 20010330
Patent Details:

Patent No Kind Lan Pg   Main IPC   Filing Notes
EP 1245245   A2 E 35 A61M-025/01
   Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
   LI LT LU LV MC MK NL PT RO SE SI TR
US 20020143378 A1   A61N-001/00
JP 2002331037 A   14 A61M-025/01
US 6522933   B2   A61N-001/00

18/3/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

014698252 **Image available**
WPI Acc No: 2002-518956/ **200255**
XRPX Acc No: N02-410831
Electrophysiology/cardiac ablation catheter **for diagnosis, has elongated** flexible **tubular casing whose specific end is laterally dislocated at right angle to plane of its preformed bend**
Patent Assignee: RASHIDI R (RASH-I)
Inventor: RASHIDI R
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
US 20020065514 A1 20020530 US 2000726235 A 20001129 200255 B

Priority Applications (No Type Date): US 2000726235 A 20001129
Patent Details:
Patent No Kind Lan Pg   Main IPC   Filing Notes
US 20020065514 A1   17 A61B-018/14

18/3/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

014261533 **Image available**
WPI Acc No: 2002-082231/ **200211**
Related WPI Acc No: 2001-396934
XRPX Acc No: N02-061268
Deflectable **high torque cardio vascular** catheter **for treating cardiac arrhythmia, has tubular element with slits which are arranged in multiple rows and with respect to longitudinal axis of shaft portion**
Patent Assignee: CHIA W R (CHIA-I); DE LA RAMA A (DRAM-I); HATA C (HATA-I); IRVINE BIOMEDICAL INC (IRVI-N)
Inventor: CHIA W R; DE LA RAMA A; HATA C
Number of Countries: 001 Number of Patents: 002
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
US 20010032007 A1 20011018 US 99372484 A 19990812 200211 B
                            US 2001878689 A 20010611
US 6611720 B2 20030826 US 99372484 A 19990812 200357
                            US 2001878689 A 20010611

Priority Applications (No Type Date): US 2001878689 A 20010611; US 99372484 A 19990812
Patent Details:
Patent No Kind Lan Pg   Main IPC   Filing Notes
US 20010032007 A1   13 A61N-001/05 CIP of application US 99372484
                                     CIP of patent US 6246914

US 6611720 B2 A61N-001/00 CIP of application US 99372484
CIP of patent US 6246914

18/3/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013947509 **Image available**
WPI Acc No: 2001-431723/ **200146**
Related WPI Acc No: 2001-366519; 2002-113393
XRAM Acc No: C01-130548
XRPX Acc No: N01-319861
Catheter **system for radio frequency** ablation **of cardiac tissues, includes rollable electrode secured to moving wire and disposed at** catheter **shaft distal tip section**
Patent Assignee: IRVINE BIOMEDICAL INC (IRVI-N)
Inventor: HATA C; TU H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6238390	B1	20010529	US 9885543	A	19980527	200146	B

Priority Applications (No Type Date): US 9885543 A 19980527
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6238390	B1		12	A61B-017/39	

18/3/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013698926 **Image available**
WPI Acc No: 2001-183150/ **200118**
XRAM Acc No: C01-054707
XRPX Acc No: N01-130728
Maneuverable **apparatus for applying therapeutic energy to biological tissues, includes conductor for transmitting energy to the elongate mechanism, and energy source**
Patent Assignee: CARDIOFOCUS INC (CARD-N)
Inventor: BAXTER L S; SINOFSKY E L
Number of Countries: 090 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200113812	A1	20010301	WO 2000US23421	A	20000825	200118	B
AU 200070762	A	20010319	AU 200070762	A	20000825	200136	

Priority Applications (No Type Date): US 99382615 A 19990825
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200113812	A1	E	53	A61B-018/24	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200070762 A A61B-018/24 Based on patent WO 200113812

18/3/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013683433 **Image available**
WPI Acc No: 2001-167646/ **200117**
Related WPI Acc No: 1998-112117; 2000-012886; 2001-450503
XRPX Acc No: N01-120843
Catheter **assembly for mapping and** ablation **of heart, has four stops at limit movement of sliders, each stop with two longitudinal abutment faces facing positions changeable to adjust movement range of sliders**
Patent Assignee: MEDTRONIC INC (MEDT)
Inventor: WEST S H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6156027	A	20001205	US 96694363	A	19960808	200117	B
			US 97920340	A	19970827		
			US 99382352	A	19990825		

Priority Applications (No Type Date): US 97920340 A 19970827; US 96694363 A 19960808; US 99382352 A 19990825
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6156027	A		11	A61M-025/01	CIP of application US 96694363 Div ex application US 97920340 CIP of patent US 5826576 Div ex patent US 5987344

18/3/8 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013240238 **Image available**
WPI Acc No: 2000-412112/ **200035**
Related WPI Acc No: 2000-422844; 2002-507736
XRPX Acc No: N00-308074
Intracardiac grasp catheter **for intracardiac mapping and tissue** ablation **has distal end preformed to small curve that can be** deflected **to a hook shape to lock onto edge of heart chamber, ring electrodes** ablate **and map heart wall**
Patent Assignee: BARD INC C R (BRDC)
Inventor: FALWELL G S; GIBSON C A; MCRURY I D; PETERSON M C; WANG P J
Number of Countries: 023 Number of Patents: 008
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200032129	A1	20000608	WO 99US28233	A	19991123	200035	B
US 6178354	B1	20010123	US 98203922	A	19981202	200107	
EP 1133264	A1	20010919	EP 99961858	A	19991123	200155	
			WO 99US28233	A	19991123		
US 6319250	B1	20011120	US 98197812	A	19981123	200174	
US 20020019630	A1	20020214	US 98197812	A	19981123	200214	
			US 2001981543	A	20011017		
JP 2002531164	W	20020924	WO 99US28233	A	19991123	200278	
			JP 2000584829	A	19991123		
US 20030004509	A1	20030102	US 98197812	A	19981123	200305	
			US 2001981543	A	20011017		
			US 2002234675	A	20020903		

John Sims EIC 3700 308-4836

US 6572611 B1 20030603 US 98197812 A 19981123 200339
US 99434599 A 19991105

Priority Applications (No Type Date): US 99434599 A 19991105; US 98197812 A 19981123; US 98203922 A 19981202; US 2001981543 A 20011017; US 2002234675 A 20020903
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
WO 200032129 A1 E 47 A61B-018/14
Designated States (National): CA JP MX US
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
US 6178354 B1 A61N-001/05
EP 1133264 A1 E A61B-018/14 Based on patent WO 200032129
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
US 6319250 B1 A61B-018/18
US 20020019630 A1 A61B-018/14 Cont of application US 98197812
Cont of patent US 6319250
JP 2002531164 W 57 A61B-005/0408 Based on patent WO 200032129
US 20030004509 A1 A61B-018/14 Cont of application US 98197812
Cont of application US 2001981543
Cont of patent US 6319250
US 6572611 B1 A61B-018/14 CIP of application US 98197812
CIP of patent US 6319250

18/3/9 (Item 9 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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013083799 **Image available**
WPI Acc No: 2000-255671/ **200022**
XRAM Acc No: C00-077928
XRPX Acc No: N00-190040
Catheter **system for radiofrequency** ablation **of cardiac tissues, comprises a** catheter **shaft, a handle, and a wire electrode having a wire constituting a long wire electrode**
Patent Assignee: IRVINE BIOMEDICAL INC (IRVI-N)
Inventor: HATA C; TU H
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
US 6033403 A 20000307 US 98168575 A 19981008 200022 B

Priority Applications (No Type Date): US 98168575 A 19981008
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
US 6033403 A 14 A61B-018/18

18/3/10 (Item 10 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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013022786 **Image available**
WPI Acc No: 2000-194637/ **200017**
XRAM Acc No: C00-060252
XRPX Acc No: N00-144023
Steerable catheter **for direct myocardial revascularization has distal**

tip carrying electromagnetic sensor, electrode and optical fiber through which laser energy is transmitted to create channel in heart tissue

Patent Assignee: CORDIS WEBSTER INC (CRDC)
Inventor: MOADDEB S; PONZI D M
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6024739	A	20000215	US 97924612	A	19970905	200017	B

Priority Applications (No Type Date): US 97924612 A 19970905
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6024739	A		18	A61B-017/36	

18/3/11 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

012804887 **Image available**
WPI Acc No: 1999-611117/ **199952**
XRPX Acc No: N99-450268
Steerable **medical** flexible **electrode bearing** catheter **, used in electrophysiological studies for intracardiac electrocardiographic recording, mapping, stimulation and** ablation

Patent Assignee: BARD INC C R (BRDC)
Inventor: FIALKOWSKI J; HAISSAGUERRE M; PATTERSON D; FIALKOWSKI J M; PATTERSON D F
Number of Countries: 022 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9952423	A1	19991021	WO 99US7512	A	19990402	199952	B
US 6064902	A	20000516	US 9861421	A	19980416	200031	
EP 1071364	A1	20010131	EP 99915286	A	19990402	200108	
			WO 99US7512	A	19990402		

Priority Applications (No Type Date): US 9861421 A 19980416
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9952423	A1	E	26	A61B-005/0402	
	Designated States (National): CA JP MX				
	Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE				
US 6064902	A			A61B-005/0408	
EP 1071364	A1	E		A61B-005/0402	Based on patent WO 9952423
	Designated States (Regional): DE ES FR GB IT				

18/3/12 (Item 12 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

012612590 **Image available**
WPI Acc No: 1999-418694/ **199935**
XRPX Acc No: N99-312567
Left atrium ablation catheter **assembly**

Patent Assignee: MEDTRONIC INC (MEDT)
Inventor: GAISER J W; LI H
Number of Countries: 022 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9930625	A1	19990624	WO 98US26643	A	19981215	199935	B
AU 9917273	A	19990705	AU 9917273	A	19981215	199948	
US 6200315	B1	20010313	US 97993211	A	19971218	200120	
US 6241728	B1	20010605	US 97993211	A	19971218	200133	
			US 99395123	A	19990914		

Priority Applications (No Type Date): US 97993211 A 19971218; US 99395123 A 19990914

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9930625	A1	E	29	A61B-017/39	
	Designated States (National): AU CA JP				
	Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE				
AU 9917273	A			A61B-017/39	Based on patent WO 9930625
US 6200315	B1			A61B-017/39	
US 6241728	B1			A61B-018/14	Div ex application US 97993211

18/3/13 (Item 13 from file: 350)

DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

012091397 **Image available**
WPI Acc No: 1998-508308/ **199844**
XRPX Acc No: N98-396397

Contact steerable **bowing electrode** catheter **for mapping and/or** ablation **of heart - Uses bowing** catheter **with sliding manipulators acting on wires attached to sheath near stiff tip**

Patent Assignee: MEDTRONIC INC (MEDT)
Inventor: LI H; MAGUIRE M A
Number of Countries: 026 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 868922	A2	19981007	EP 98302105	A	19980320	199844	B
JP 11000403	A	19990106	JP 9884843	A	19980331	199911	
US 5879295	A	19990309	US 97825778	A	19970402	199917	

Priority Applications (No Type Date): US 97825778 A 19970402
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 868922	A2	E	17	A61M-025/00	
	Designated States (Regional): AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI				
JP 11000403	A		12	A61M-025/01	
US 5879295	A			A61N-001/05	

18/3/14 (Item 14 from file: 350)

DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

012009908 **Image available**
WPI Acc No: 1998-426818/ **199836**
XRAM Acc No: C98-128531
XRPX Acc No: N98-333158

Ablation catheter **to control cardiac arrhythmias - has a distal tip with multiple long electrodes and temperature sensors, and multiple curved portions** steerable **by wires**

John Sims EIC 3700 308-4836

Patent Assignee: IRVINE BIOMEDICAL INC (IRVI-N)
Inventor: CHEN P C; DE LA RAMA A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5782828	A	19980721	US 96763614	A	19961211	199836	B

Priority Applications (No Type Date): US 96763614 A 19961211
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5782828	A		9	A61B-017/36	

18/3/15 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

011846153 **Image available**
WPI Acc No: 1998-263063/ **199824**
XRPX Acc No: N98-207440
Stabilised electrophysiology catheter **- has main body part with** flexible **and radially** deflectable **tip portion actuated by longitudinal movements of manipulator**
Patent Assignee: MEDTRONIC INC (MEDT)
Inventor: GAISER J W; MCINTOSH S A; NGUYEN F; WEISS C; WILLEMS S
Number of Countries: 026 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 842673	A1	19980520	EP 97308920	A	19971106	199824	B
JP 11000401	A	19990106	JP 97304771	A	19971107	199911	
US 6002955	A	19991214	US 9630729	P	19961108	200005	
			US 97865331	A	19970529		
			US 97949408	A	19971014		
EP 842673	B1	20030115	EP 97308920	A	19971106	200306	
DE 69718423	E	20030220	DE 618423	A	19971106	200322	
			EP 97308920	A	19971106		

Priority Applications (No Type Date): US 97949408 A 19971014; US 9630729 P 19961108; US 97865331 A 19970529
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 842673	A1	E	21	A61M-025/01	
Designated States (Regional): AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
JP 11000401	A		12	A61M-025/00	
US 6002955	A			A61N-001/05	Provisional application US 9630729 CIP of application US 97865331
EP 842673	B1	E		A61M-025/01	
Designated States (Regional): CH DE FR GB IT LI NL SE					
DE 69718423	E			A61M-025/01	Based on patent EP 842673

18/3/16 (Item 16 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2003 Thomson Derwent. All rts. reserv.

011296250 **Image available**
WPI Acc No: 1997-274155/ **199725**
XRPX Acc No: N97-227062
Steerable **guiding** catheter **with ultrasound imaging capability - has**

flexible tip on distal end of elongated tubing body with ultrasonic transducer on tip to transmit ultrasound energy and receive resultant echoes

Patent Assignee: CORDIS CORP (CRDC)
Inventor: BUCK J C; LARNARD D J
Number of Countries: 011 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 774232	A1	19970521	EP 96308117	A	19961108	199725	B
CA 2189594	A	19970510	CA 2189594	A	19961105	199736	
US 5803083	A	19980908	US 956493	A	19951109	199843	
			US 96723821	A	19960930		

Priority Applications (No Type Date): US 96723821 A 19960930; US 956493 P 19951109
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 774232	A1	E	12	A61B-001/00	
Designated States (Regional): BE CH DE FR GB IE IT LI NL					
CA 2189594	A			A61B-008/12	
US 5803083	A			A61B-008/00	Provisional application US 956493

18/3/17 (Item 17 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011141451 **Image available**
WPI Acc No: 1997-119375/ **199712**
Related WPI Acc No: 1996-105142; 1996-278387
XRPX Acc No: N97-098336
Steerable **electrophysiology** catheter **- in which tubular strain relief member acts as interface between shaft and handle such that strain relief and tube can be heat welded together**
Patent Assignee: MEDTRONIC CARDIORHYTHM (MEDT)
Inventor: JARACZEWSKI R S; NGUYEN F; TRUCKAI C; WEST S H
Number of Countries: 001 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
AU 9670522	A	19970123	AU 9481503	A	19941216	199712	B
			AU 9670522	A	19961031		
AU 683603	B	19971113	AU 9481503	A	19941216	199803	
			AU 9670522	A	19961031		

Priority Applications (No Type Date): US 94343310 A 19941122
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
AU 9670522	A		52	A61M-025/01	Div ex application AU 9481503
AU 683603	B			A61M-025/01	Div ex application AU 9481503
					Previous Publ. patent AU 9670522

18/3/18 (Item 18 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011087393 **Image available**
WPI Acc No: 1997-065317/ **199706**
XRAM Acc No: C97-021500
XRPX Acc No: N97-053736

Steerable catheter **with electromagnetic sensor between tip electrode and multi-lumen shaft - has bridging tube over shaft sensor and sensor electrode connections and puller wire in noncompressible coil**

Patent Assignee: CORDIS WEBSTER INC (CRDC)
Inventor: PONZI D M; WEBSTER W W
Number of Countries: 021 Number of Patents: 006
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9641654	A1	19961227	WO 96US10277	A	19960612	199706	B
EP 879069	A1	19981125	EP 96923302	A	19960612	199851	
			WO 96US10277	A	19960612		
US 5843076	A	19981201	US 95157	P	19950612	199904	
			US 96662360	A	19960612		
JP 11507580	W	19990706	WO 96US10277	A	19960612	199937	
			JP 97503327	A	19960612		
EP 879069	B1	20030820	EP 96923302	A	19960612	200356	
			WO 96US10277	A	19960612		
DE 69629593	E	20030925	DE 629593	A	19960612	200371	
			EP 96923302	A	19960612		
			WO 96US10277	A	19960612		

Priority Applications (No Type Date): US 95157 P 19950612; US 96662360 A 19960612
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9641654	A1	E	22	A61M-037/00	
Designated States (National): CA JP					
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
EP 879069	A1	E		A61M-037/00	Based on patent WO 9641654
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
US 5843076	A			A61B-017/36	Provisional application US 95157
JP 11507580	W		28	A61B-005/0408	Based on patent WO 9641654
EP 879069	B1	E		A61M-025/00	Based on patent WO 9641654
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
DE 69629593	E			A61M-025/00	Based on patent EP 879069 Based on patent WO 9641654

18/3/19 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010781434 **Image available**
WPI Acc No: 1996-278387/ **199629**
Related WPI Acc No: 1996-105142; 1997-119375
XRPX Acc No: N96-234068

Steerable **electro-physiology** catheter **used for treatment of tachycardia - has at least one electrode secured to** deflectable **tip, while conductor is provided for delivering current from proximal end of shaft to electrode**

Patent Assignee: MEDTRONIC CARDIORHYTHM (MEDT)
Inventor: JARACZEWSKI R S; NGUYEN F; TRUCKAI C; WEST S H
Number of Countries: 003 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
AU 9481503	A	19960530	AU 9481503	A	19941216	199629	B
AU 670894	B	19960801	AU 9481503	A	19941216	199638	

CA 2138236	A	19960523	CA 2138236	A	19941215	199638
US 5545200	A	19960813	US 9395447	A	19930720	199638
			US 94343310	A	19941122	
CA 2138236	C	19980929	CA 2138236	A	19941215	199849

Priority Applications (No Type Date): US 94343310 A 19941122; US 9395447 A 19930720

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
AU 9481503	A		55	A61M-025/01	
AU 670894	B			A61M-025/01	Previous Publ. patent AU 9481503
US 5545200	A		28	A61M-001/00	CIP of application US 9395447
CA 2138236	A			A61M-025/01	
CA 2138236	C			A61M-025/092	

18/3/20 (Item 20 from file: 350)

DIALOG(R)File 350:Derwent WPIX

010205370

WPI Acc No: 1995-106624/ **199514**

XRAM Acc No: C95-048540

XRPX Acc No: N95-084374

Steerable **open lumen electrode** catheter **- has puller wire extending through coil spring and attached to tip of second lumen with other end attached to control handle to enable tip** deflection

Patent Assignee: CORDIS WEBSTER INC (CRDC); WEBSTER W W (WEBS-I); BIOSENSE WEBSTER INC (BIOS-N)

Inventor: WEBSTER W W; WEBSTER W W J

Number of Countries: 019 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9505771	A1	19950302	WO 94US9390	A	19940822	199514	B
US 5431168	A	19950711	US 93112241	A	19930823	199533	
EP 715530	A1	19960612	EP 94927190	A	19940822	199628	
			WO 94US9390	A	19940822		
JP 9501851	W	19970225	WO 94US9390	A	19940822	199718	
			JP 95507680	A	19940822		
EP 715530	A4	19970604	EP 94927190	A		199746	
EP 715530	B1	20020227	EP 94927190	A	19940822	200215	
			WO 94US9390	A	19940822		
DE 69429993	E	20020404	DE 629993	A	19940822	200230	
			EP 94927190	A	19940822		
			WO 94US9390	A	19940822		
ES 2173122	T3	20021016	EP 94927190	A	19940822	200279	

Priority Applications (No Type Date): US 93112241 A 19930823

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9505771	A1	E	16	A61B-005/00	
Designated States (National): CA JP					
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE					
US 5431168	A		10	A61B-005/00	
EP 715530	A1	E		A61M-025/01	Based on patent WO 9505771
Designated States (Regional): DE ES FR GB IT NL					
JP 9501851	W		24	A61M-025/01	Based on patent WO 9505771
EP 715530	A4			A61B-005/00	
EP 715530	B1	E		A61M-025/01	Based on patent WO 9505771
Designated States (Regional): DE ES FR GB IT NL					

John Sims EIC 3700 308-4836

DE 69429993	E	A61M-025/01	Based on patent EP 715530 Based on patent WO 9505771
ES 2173122	T3	A61M-025/01	Based on patent EP 715530

18/3/21 (Item 21 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009579043 **Image available**
WPI Acc No: 1993-272589/ **199334**
XRPX Acc No: N93-209380
Cardiac arrhythmia ablation catheter **for navigating cardiac chamber - has dual element biplanar control system which enables distal tip to gain access to any point on wall of chamber entered**
Patent Assignee: AVITALL B (AVIT-I); ABITOL B (ABIT-I)
Inventor: AVITALL B
Number of Countries: 021 Number of Patents: 015
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9315790	A1	19930819	WO 93US1213	A	19930211	199334 B
US 5327905	A	19940712	US 92835553	A	19920214	199427
			US 92909867	A	19920707	
			US 92989804	A	19921211	
US 5354297	A	19941011	US 92835553	A	19920214	199440
			US 92909867	A	19920707	
EP 625919	A1	19941130	EP 93905017	A	19930211	199501
			WO 93US1213	A	19930211	
CN 1082382	A	19940223	CN 93105677	A	19930507	199523
JP 7504834	W	19950601	JP 93514281	A	19930211	199530
			WO 93US1213	A	19930211	
CA 2117487	C	19960430	CA 2117487	A	19930211	199627
EP 625919	A4	19960110	EP 93905017	A		199633
US 5642736	A	19970701	US 92835553	A	19920214	199732
			US 92909867	A	19920707	
			US 92989804	A	19921211	
			US 94194853	A	19940214	
			US 96699204	A	19960819	
US 6113556	A	20000905	US 92835553	A	19920214	200044
			US 92909867	A	19920707	
			US 92989804	A	19921211	
			US 94194853	A	19940214	
			US 95482674	A	19950608	
EP 625919	B1	20010411	EP 93905017	A	19930211	200121
			WO 93US1213	A	19930211	
DE 69330120	E	20010517	DE 630120	A	19930211	200135
			EP 93905017	A	19930211	
			WO 93US1213	A	19930211	
ES 2159289	T3	20011001	EP 93905017	A	19930211	200167
KR 271780	B	20010115	KR 9310387	A	19930609	200206
JP 3384804	B2	20030310	JP 93514281	A	19930211	200321
			WO 93US1213	A	19930211	

Priority Applications (No Type Date): US 92989804 A 19921211; US 92835553 A 19920214; US 92909867 A 19920707; US 94194853 A 19940214; US 96699204 A 19960819; US 95482674 A 19950608
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9315790	A1	E	35	A61N-001/00	

Designated States (National): CA JP
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL

John Sims EIC 3700 308-4836

	PT SE			
US 5327905	A	24	A61B-005/00	CIP of application US 92835553
				CIP of application US 92909867
US 5354297	A	11	A61B-005/04	CIP of application US 92835553
EP 625919	A1 E	2	A61N-001/00	Based on patent WO 9315790
	Designated States (Regional): DE ES FR GB IT			
CN 1082382	A		A61B-017/36	
JP 7504834	W	13	A61B-017/39	Based on patent WO 9315790
CA 2117487	C		A61B-017/36	
EP 625919	A4		A61N-001/00	
US 5642736	A	13	A61B-005/00	CIP of application US 92835553
				CIP of application US 92909867
				Cont of application US 92989804
				Cont of application US 94194853
				Cont of patent US 5327905
				CIP of patent US 5354297
US 6113556	A		A61B-005/00	CIP of application US 92835553
				CIP of application US 92909867
				Cont of application US 92989804
				Div ex application US 94194853
				Cont of patent US 5327905
				CIP of patent US 5354297
EP 625919	B1 E		A61N-001/00	Based on patent WO 9315790
	Designated States (Regional): DE ES FR GB IT			
DE 69330120	E		A61N-001/00	Based on patent EP 625919
				Based on patent WO 9315790
ES 2159289	T3		A61N-001/00	Based on patent EP 625919
KR 271780	B		A61B-005/00	Previous Publ. patent KR 94001857
JP 3384804	B2	11	A61B-018/12	Previous Publ. patent JP 7504834
				Based on patent WO 9315790

?

10/3,KWIC/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014879158 **Image available**
WPI Acc No: 2002-699864/200276
Related WPI Acc No: 2002-076839
XRPX Acc No: N02-551712
Medical ablation device e.g. ablation catheter has pair of electrodes positioned proximate to antenna enclosed by flexible tubing inserted into blood vessel in patient's body, for sensing electrical activities of tissues
Patent Assignee: AFX INC (AFXA-N)
Inventor: **BERUBE D** ; GAUTHIER J
Number of Countries: 026 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 1240876	A1	20020918	EP 2001303173	A	20010403	200276 B
			EP 20029099	A	20010403	

Priority Applications (No Type Date): US 2000548331 A 20000412; US 2000547629 A 20000412
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1240876	A1	E	23	A61B-018/14	Div ex application EP 2001303173 Div ex patent EP 1145686

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

Medical ablation device e.g. ablation catheter has pair of electrodes positioned proximate to antenna enclosed by flexible tubing inserted into blood vessel in patient's body, for sensing electrical activities of tissues
Inventor: **BERUBE D** ...

Abstract (Basic):
... The device has a **flexible** tubing (14) enclosing an antenna (64), which is inserted into blood vessel in patient's body. A pair of electrically isolated electrodes (102,104) positioned...

...to the antenna, sense the electrical activity of biological tissues inside the body. A pair of electrically isolated electrode wires (108,110) extending through the **flexible** tubing, are connected to the respective electrodes.
... An INDEPENDENT CLAIM is included for biological tissue **ablation** method...

...Medical **ablation** device e.g. RF **catheters** , cryoablation **catheters** , microwave **ablation catheters** , laser **catheters** , ultrasound **catheter** used for **ablating** biological tissues in heart, brain, prostate, stomach, intestine and liver, etc...

...electrodes. The coupling between an antenna and the electrodes is prevented by the highly conductive electrode wires that are inexpensive and easy to manufacture. Improves **maneuverability** of **catheter** tip and permits use of electrodes of any desired size, since it is relatively easy to control the electrode dimensions...

...The figure shows a perspective view of the antenna arrangement of the medical **ablation** device...

... **Flexible** tubing (14
...Title Terms: **ABLATE** ;

10/3,KWIC/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014834911 **Image available**
WPI Acc No: 2002-655617/200270
Related WPI Acc No: 2002-731684; 2003-419332; 2003-447798; 2003-481835; 2003-556809
XRPX Acc No: N02-518097
Tissue ablation **for cardiac arrhythmia treatment, involves positioning** ablative **device into lumen until energy delivery portion is located partially within distal end of** flexible **tube and delivering** ablative **energy**
Patent Assignee: AFX INC (AFXA-N)
Inventor: **BERUBE D** ; MODY D; NORRIS N
Number of Countries: 098 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20020087151	A1	20020704	US 2000751472	A	20001229	200270	B
WO 200353259	A2	20030703	WO 2001US49686	A	20011228	200344	

Priority Applications (No Type Date): US 2000751472 A 20001229
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20020087151	A1		41	A61B-018/18	
WO 200353259	A2	E		A61B-017/22	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

Tissue ablation **for cardiac** arrhythmia treatment, involves positioning ablative **device into lumen until energy delivery portion is located partially within distal end of** flexible **tube and delivering** ablative **energy**
Inventor: **BERUBE D** ...

Abstract (Basic):
... An **ablation** sheath (22) having a lumen (25) is introduced into patient's body in such a way, that is malleable distal end portion contacts tissue region to be **ablated** . An **ablative** device (26) is transluminally positioned within the lumen until an energy delivery portion (27) comprising **flexible** and unidirectional microwave element is located partially within distal end portion. Then an **ablative** energy is delivered to energy delivery portion.
... 1) Tissue **ablation** system...

...2) **Guide** sheath; and...

...3) Method of conducting surgical **ablation** on patient's heart...

...For tissue **ablation** in cardiac arrhythmia treatment...

...Enables generating desired tissue **ablations** , by advancing **ablative** device along **ablation** path...

...The figure shows the fragmented, partial broken top perspective view of **ablation** system...
... **Ablation** sheath (22...

... **Ablative** device (26
...Title Terms: **ABLATE** ;

10/3,KWIC/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014256141 **Image available**
WPI Acc No: 2002-076839/200211
Related WPI Acc No: 2002-699864
XRPX Acc No: N02-056699
Microwave ablation catheter **or surgical tool for** ablation **of internal biological tissues includes high frequency** directional **irradiator with antenna enclosure containing antenna and reflector**
Patent Assignee: AFX INC (AFXA-N)
Inventor: **BERUBE D** ; GAUTHIER J
Number of Countries: 028 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 1145686	A2	20011017	EP 2001303173	A	20010403	200211	B
JP 2002017745	A	20020122	JP 2001113412	A	20010412	200212	
US 6471696	B1	20021029	US 2000547629	A	20000412	200274	

Priority Applications (No Type Date): US 2000548331 A 20000412; US 2000547629 A 20000412
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1145686	A2	E	22	A61B-018/14	
	Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR				
JP 2002017745	A		72	A61B-018/18	
US 6471696	B1			A61B-018/18	

Microwave ablation catheter **or surgical tool for** ablation **of internal biological tissues includes high frequency** directional **irradiator with antenna enclosure containing antenna and reflector**
Inventor: **BERUBE D** ...

Abstract (Basic):
... The microwave **ablation catheter** has...

...a) a **flexible** hollow tube (14) designed to be inserted into a part of a patients body...
... The antenna generates an electromagnetic field sufficiently strong to cause tissue **ablation** . The reflector is configured so that it directs a part of the electromagnetic field to a second side of the antenna opposite to the first...

...The device has an electrode arrangement for sensing electrical activity of biological tissue inside the patients body. The electrode arrangement is positioned in a set **direction** , which is relative to the electromagnetic field **direction** . The electrode arrangement

provides a reference point for determining the position of the electromagnetic field relative to sensed biological tissues. The electrodes are a pair of separated electrically insulated wires positioned adjacent to each other in the **flexible** tube. A pair of electrically insulated wires extend from the tube each electrode wire being coupled to the associated wire electrode...

...Has improved antenna and electrode arrangement which can be used a wide variety of **ablation** devices...
...Title Terms: **ABLATE** ; **CATHETER** ;

10/3,KWIC/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014107136 **Image available**
WPI Acc No: 2001-591348/200167
XRPX Acc No: N01-440593
Flexible **micro-wave antenna assembly for surgical** ablation **instrument, has antenna, shield device and insulator formed as unit to enable manipulative bending to conform window portion to biological tissue surface**
Patent Assignee: AFX INC (AFXA-N)
Inventor: **BERUBE D** ; GAUTHIER J; NGUYEN H
Number of Countries: 028 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 1118310	A1	20010725	EP 2001300354	A	20010116	200167	B
JP 2001245898	A	20010911	JP 20018627	A	20010117	200167	
US 20020193783	A1	20021219	US 2000484548	A	20000118	200303	
			US 2002219598	A	20020814		

Priority Applications (No Type Date): US 2000484548 A 20000118; US 2002219598 A 20020814
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1118310	A1	E	25	A61B-018/14	
	Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR				
JP 2001245898	A		66	A61B-018/18	
US 20020193783	A1			A61B-018/18	Cont of application US 2000484548

Flexible **micro-wave antenna assembly for surgical** ablation **instrument, has antenna, shield device and insulator formed as unit to enable manipulative bending to conform window portion to biological tissue surface**
Inventor: **BERUBE D** ...

Abstract (Basic):
... A **flexible** insulator (31) arranged between **flexible** shield device (30) and antenna (28) defines a window portion (27) to enable transmission of directed electric field in predetermined **direction** . The antenna, shield device and insulator are formed as unit to enable selective manipulative bending to one of several contact positions to conform portion (27) to the biological tissue surface to be **ablated** .
... The **flexible** antenna coupled to the transmission line radially generates an electric field sufficiently strong to cause tissue **ablation** . The **flexible** shield device coupled to antenna shields a surrounding area of antenna from radially generated electric field and

directs a majority of the electric field in a predetermined **direction** . INDEPENDENT CLAIMS are also included for following...

...a) Micro-wave **ablation** instrument...

...For micro-wave **ablation** instrument to **ablate** internal body tissues for treating atrial arrhythmia...

...Enables manipulative bending of the antenna assembly to conform the window portion to the biological tissue surface to be **ablated** , which ensures greater degree of contact between elongated window portion and targeted tissue, which maintains the radiation efficiency of antenna and thus allowing proper turning...

... **Flexible** antenna (28...

... **Flexible** shield device (30...

... **Flexible** insulator (31
Title Terms: **FLEXIBLE** ;

20/3/1
DIALOG(R)File 348:EUROPEAN PATENTS

01439354
Soft tissue coagulation probe
Weichgewebekoagulationssonde
Sonde de coagulation pour tissus mous
PATENT ASSIGNEE:
Boston Scientific Limited, (2711517), The Financial Services Centre, P.O. Box 111, Bishops Court Hill, St. Michael, (BB), (Applicant designated States: all)
INVENTOR:
Swanson, David K., 1458 Ridgeley Drive, Campbell , California 95008, (US)
Fleischmann, Sidney D., 855 Woodland Avenue, Menlo Park, CA 94025, (US)
Koblish, Josef V., 3898 Magnolia Drive, Apt. 3, Palo Alto, California 94306, (US)
Thompson, Russel B., 123 West Portola Avenue, Los Altos, CA 94022, (US)
Whayne, James G., 17930 Los Felice Road, Saragota, CA 95070, (US)
Jenkins, Thomas R., Apt.302, 322 Hanover Avenue, Oakland, CA 94606, (US)
Snyder, Edward J., 1545 Edgewood Way, San Jose, CA 95125, (US)
Burnside, Robert, 1226 Nilda Avenue, Mountain View, CA 94040, (US)
Yang, Yi, 2394 45th Avenue, San Francisco, CA 94116, (US)
LEGAL REPRESENTATIVE:
Viering, Jentschura & Partner (100645), Postfach 22 14 43, 80504 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 1224917 A2 020724 (Basic)
EP 1224917 A3 020828
APPLICATION (CC, No, Date): EP 2002006420 981009;
PRIORITY (CC, No, Date): US 949117 971010; US 949083 971010; US 948729 971010; US 949084 971010; US 72872 980505; US 72941 980505; US 72835 980505; US 72834 980505; US 73050 980505; US 72650 980505
DESIGNATED STATES: DE; ES; FR; GB; IT; NL; SE
RELATED PARENT NUMBER(S) - PN (AN):
EP 1024761 (EP 98953352)
INTERNATIONAL PATENT CLASS: A61B-018/14
ABSTRACT WORD COUNT: 103
NOTE:
Figure number on first page: 10A

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200230	678
SPEC A	(English)	200230	21889
Total word count - document A			22567
Total word count - document B			0
Total word count - documents A + B			22567

20/3/2
DIALOG(R)File 348:EUROPEAN PATENTS

01346765
Apparatus for R-F ablation
Rf Ablationsvorrichtug
Appareil d'ablation a radiofrequence
PATENT ASSIGNEE:
Medtronic Inc., (2621964), 710 Medtronic Parkway, Minneapolis, MN 55432-5604, (US), (Applicant designated States: all)

INVENTOR:
  Mulier, Peter M. J., 1408 Forest Lane, St. Paul, Minnesota 55112, (US)
  Hoey, Michael F., 5733 Pond Drive, Shoreview, Minnesota 55126, (US)
LEGAL REPRESENTATIVE:
  Hughes, Andrea Michelle (75891), Frank B. Dehn & Co., European Patent Attorneys, 179 Queen Victoria Street, London EC4V 4EL, (GB)
PATENT (CC, No, Kind, Date): EP 1149564 A1 011031 (Basic)
APPLICATION (CC, No, Date): EP 2001119071 950728;
PRIORITY (CC, No, Date): US 303246 940908
DESIGNATED STATES: DE; FR; GB; IT; NL; SE
RELATED PARENT NUMBER(S) - PN (AN):
  EP 779794 (EP 95927486)
INTERNATIONAL PATENT CLASS: A61B-018/14
ABSTRACT WORD COUNT: 48
NOTE:
  Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200144	167
SPEC A	(English)	200144	5421
Total word count - document A			5588
Total word count - document B			0
Total word count - documents A + B			5588

20/3/3
DIALOG(R)File 348:EUROPEAN PATENTS

01294048
Catheter distal assembly with pull wires
Distale einheit mit Zugdrahten fur einen Katheter
Ensemble distal de catheter avec fil de traction
PATENT ASSIGNEE:
  E.P. Technologies, Inc., (2758870), 2710 Orchard Parkway,, San Jose, CA 95134, (US), (Applicant designated States: all)
INVENTOR:
  Thompson, Russel B., 123 West Portola Avenue, Los Altos, CA 94022, (US)
  Fleischman, Sidney D., 855 Woodland Avenue, Menlo Park, CA 94025, (US)
  Koblish, Josef V., 3898 Magnolia Drive, Apt.3, Palo Alto, CA 94306, (US)
  Whayne, James G., 868 Del Avion Lane, San Jose, CA 95070, (US)
  Levin, Steven E., 2424 Tamal Pais Street, Mountain View, CA 94043, (US)
LEGAL REPRESENTATIVE:
  Viering, Jentschura & Partner (100645), Postfach 22 14 43, 80504 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 1108441 A2 010620 (Basic)
  EP 1108441 A3 010704
APPLICATION (CC, No, Date): EP 2001103826 981030;
PRIORITY (CC, No, Date): US 960902 971030; US 960850 971030; US 961374 971030
DESIGNATED STATES: DE; ES; FR; GB; IT; NL; SE
RELATED PARENT NUMBER(S) - PN (AN):
  EP 1027090 (EP 98956420)
INTERNATIONAL PATENT CLASS: A61M-025/01
ABSTRACT WORD COUNT: 167
NOTE:
  Figure number on first page: 3A

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200125	1088
SPEC A	(English)	200125	14373
Total word count - document A			15461
Total word count - document B			0
Total word count - documents A + B			15461

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DIALOG(R)File 348:EUROPEAN PATENTS

01051478

CATHETER DISTAL ASSEMBLY WITH PULL WIRES
DISTALE EINHEIT EINES KATHETERS MIT ZUGDRAHTEN
ENSEMBLE DISTAL DE CATHETER AVEC FIL DE TRACTION

PATENT ASSIGNEE:
Boston Scientific Limited, (2787670), Financial Services Centre, Post Office Box 111, Bishop's Court Hill, Saint Michael, Barbados, West Indies, (BB), (Proprietor designated states: all)

INVENTOR:
THOMPSON, Russel, B., 123 West Portola Avenue, Los Altos, CA 94022, (US)
FLEISCHMAN, Sidney, D., 853 Woodland Avenue, Menlo Park, CA 94025, (US)
KOBLISH, Josef, V., 3898 Magnolia Drive, Apt. 3,, Palo Alto, CA 94306, (US)
WHAYNE, James, G., 868 Del Avion Lane, San Jose, CA 95070, (US)
LEVIN, Steven, E., 2424 Tamal Pais Street, Mountain View, CA 94043, (US)

LEGAL REPRESENTATIVE:
Viering, Jentschura & Partner (100645), Postfach 22 14 43, 80504 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 1027090 A1 000816 (Basic)
EP 1027090 B1 010829
WO 9922799 990514

APPLICATION (CC, No, Date): EP 98956420 981030; WO 98US23169 981030

PRIORITY (CC, No, Date): US 960902 971030; US 960850 971030; US 961374 971030

DESIGNATED STATES: DE; ES; FR; GB; IT; NL; SE

RELATED DIVISIONAL NUMBER(S) - PN (AN):
EP 1108441 (EP 2001103826)

INTERNATIONAL PATENT CLASS: A61M-025/01

NOTE:
No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200135	844
CLAIMS B	(German)	200135	791
CLAIMS B	(French)	200135	971
SPEC B	(English)	200135	14361
Total word count - document A			0
Total word count - document B			16967
Total word count - documents A + B			16967

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DIALOG(R)File 348:EUROPEAN PATENTS

01046181

SOFT TISSUE COAGULATION PROBE

John Sims EIC 3700 308-4836

WEICHGEWEBEKOAGULATIONSSONDE
SONDE DE COAGULATION POUR TISSUS MOUS
PATENT ASSIGNEE:
Boston Scientific Limited, (2711510), The Financial Services Centre, P.O. Box 111, Bishop's Court Hill, St. Michael, Barbados, (BB), (Proprietor designated states: all)
INVENTOR:
SWANSON, David K., Apartment 705, 877 Heatherstone Way, Mountain View, CA 94040, (US)
FLEISCHMAN, Sidney, D., 855 Woodland Avenue, Menlo Park, CA 94025, (US)
KOBLISH, Josef, V., 1055 Manet Drive, Sunnyvale, CA 94087, (US)
THOMPSON, Russell, B., 123 West Portola Avenue, Los Altos, CA 94022, (US)
WHAYNE, James, G., 17930 Los Felice Road, Saratoga, CA 95070, (US)
JENKINS, Thomas R., Apartment 302, 322 Hanover Avenue, Oakland, CA 94606, (US)
SNYDER, Edward, J., 1545 Edgewood Way, San Jose, CA 95125, (US)
BURNSIDE, Robert, 1226 Nilda Avenue, Mountain View, CA 94040, (US)
YANG, Yi, 2394 45th Avenue, San Francisco, CA 94116, (US)
LEGAL REPRESENTATIVE:
Viering, Jentschura & Partner (100645), Postfach 22 14 43, 80504 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 1024761 A2 000809 (Basic)
EP 1024761 B1 020814
WO 9918878 990422
APPLICATION (CC, No, Date): EP 98953352 981009; WO 98US21357 981009
PRIORITY (CC, No, Date): US 949117 971010; US 949083 971010; US 948729 971010; US 949084 971010; US 72872 980505; US 72941 980505; US 72835 980505; US 72834 980505; US 73050 980505; US 72650 980505
DESIGNATED STATES: DE; ES; FR; GB; IT; NL; SE
RELATED DIVISIONAL NUMBER(S) - PN (AN):
EP 1224917 (EP 2002006420)
INTERNATIONAL PATENT CLASS: A61B-018/12
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200233	929
CLAIMS B	(German)	200233	788
CLAIMS B	(French)	200233	1044
SPEC B	(English)	200233	20360
Total word count - document A			0
Total word count - document B			23121
Total word count - documents A + B			23121

20/3/6
DIALOG(R)File 348:EUROPEAN PATENTS

00953192
SYSTEMS FOR VISUALIZING INTERIOR TISSUE REGIONS
ANORDNUNGEN ZUR DARSTELLUNG VON KORPERINNEREN GEWEBETEILEN
SYSTEMES PERMETTANT DE VISUALISER DES REGIONS INTERNES DE TISSUS
PATENT ASSIGNEE:
Boston Scientific Limited, (2711512), The Corporate Center, Bush Hill, Bay Street, St. Michael, Barbados, West Indies, (BB), (Proprietor designated states: all)
INVENTOR:
McGEE, David, 730 East Evelyn Avenue 226, Sunnyvale, CA 94086, (US)
SWANSON, David, K., 877 Heatherstone Way, Mountain View, CA 94040, (US)

TENHOFF, Harm, 201 Ada Avenue 37, Mountain View, CA 94303, (US)
PANESCU, Dorin, 382 North Fair Oaks, Sunnyvale, CA 94086, (US)
WHAYNE, James, G., 868 Del Avion Lane, San Jose CA 95138, (US)
LEGAL REPRESENTATIVE:
Viering, Jentschura & Partner (100645), Postfach 22 14 43, 80504 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 964644 A1 991222 (Basic)
EP 964644 B1 021009
EP 964644 B9 021211
WO 98018388 980507
APPLICATION (CC, No, Date): EP 97913783 971027; WO 97US19373 971027
PRIORITY (CC, No, Date): US 738822 961028
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE
INTERNATIONAL PATENT CLASS: A61B-008/12; A61B-005/042
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200250	618
CLAIMS B	(German)	200250	615
CLAIMS B	(French)	200250	710
SPEC B	(English)	200250	11723
Total word count - document A			0
Total word count - document B			13666
Total word count - documents A + B			13666

20/3/7
DIALOG(R)File 348:EUROPEAN PATENTS

00943870
Systems and methods for tissue mapping and ablation
System und verfahren zur Gewebe Darstellung einer ablation
Systeme et methodes de cartographie et ablation de tissus
PATENT ASSIGNEE:
MEDTRONIC, INC., (209274), 7000 Central Avenue N.E., Minneapolis, Minnesota 55432, (US), (applicant designated states: AT;BE;CH;DE;DK;ES;FI;FR;GB;GR;IE;IT;LI;LU;MC;NL;PT;SE)
INVENTOR:
Gaiser, John, 910 Bush Street, Moutain View, California 94041, (US)
Bruszewski, Walter, 3562 17th Street, Apt. A, San Francisco, California 94110-1025, (US)
Maguire, Mark, 1615 Cottle Avenue, San Jose, California 95125, (US)
Le, Le, 2694 Somerset Park Circle, San Jose, California 95125, (US)
Nguyen, Huu, 1826 Jermaine Court, San Jose, California 95122, (US)
Haissaguerre, Michael, 57 Rue Angel Durand, 33400 Talence, (FR)
LEGAL REPRESENTATIVE:
Bayliss, Geoffrey Cyril et al (28151), BOULT WADE TENNANT, 27 Furnival Street, London EC4A 1PQ, (GB)
PATENT (CC, No, Kind, Date): EP 856291 A2 980805 (Basic)
EP 856291 A3 981202
APPLICATION (CC, No, Date): EP 98300478 980123;
PRIORITY (CC, No, Date): US 794804 970204
DESIGNATED STATES: DE; FR; NL
INTERNATIONAL PATENT CLASS: A61B-017/39;
ABSTRACT WORD COUNT: 170

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9832	1217
SPEC A	(English)	9832	8029
Total word count - document A			9246
Total word count - document B			0
Total word count - documents A + B			9246

20/3/8

DIALOG(R)File 348:EUROPEAN PATENTS

00896104

SYSTEM FOR SENSING SUB-SURFACE TEMPERATURES IN BODY TISSUE DURING ABLATION
SYSTEM ZUM ERFUHLEN VON UNTER-DER-HAUT TEMPERATUREN IN KORPERGEWEBE WAHREND ABLATION
SYSTEME DE RELEVE DES TEMPERATURES SUBSUPERFICIELLES DES TISSUS DE L'ORGANISME

PATENT ASSIGNEE:
Boston Scientific Limited, (2787670), Financial Services Centre, Post Office Box 111, Bishop's Court Hill, Saint Michael, Barbados, West Indies, (BB), (Proprietor designated states: all)

INVENTOR:
PANESCU, Dorin, Apartment 4, 382 N Fair Oaks, Sunnyvale, CA 94086, (US)
SWANSON, David, K., 877 Heatherstone Way, Mountain View, CA 94040, (US)
FLEISCHMAN, Sidney, D., 855 Woodland Avenue, Menlo Park, CA 94025, (US)
BOURNE, Thomas, M., 2650 California Street No. 96, Mountain View, CA 94040, (US)
WHAYNE, James, G., 17930 Los Felice Road, Saratoga, CA 95070, (US)

LEGAL REPRESENTATIVE:
Schlee, Alexander, Dipl.-Ing. et al (74361), Viering, Jentschura & Partner, Patentanwalte, Postfach 22 14 43, 80504 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 823842 A2 980218 (Basic)
EP 823842 A2 990224
EP 823842 B1 011031
WO 9636860 961121

APPLICATION (CC, No, Date): EP 96914564 960430; WO 96US6017 960430

PRIORITY (CC, No, Date): US 431857 950501; US 431907 950501; US 432001 950501; US 432091 950501; US 432321 950501; US 432325 950501

DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE

INTERNATIONAL PATENT CLASS: A61B-018/18

NOTE:
No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200144	648
CLAIMS B	(German)	200144	608
CLAIMS B	(French)	200144	754
SPEC B	(English)	200144	11583
Total word count - document A			0
Total word count - document B			13593
Total word count - documents A + B			13593

20/3/9

DIALOG(R)File 348:EUROPEAN PATENTS

00862046
FLEXIBLE **TISSUE ABLATION ELEMENTS FOR MAKING LONG LESIONS**
FLEXIBELE **GEWEBEABLATIONSELEMENTE ZUM BEIBRINGEN LANGLICHER LASIONEN**
ELEMENTS FLEXIBLES **D'ABLATION TISSULAIRE DESTINES A PRATIQUER DES LESIONS LONGUES**
PATENT ASSIGNEE:
Boston Scientific Limited, (2787670), Financial Services Centre, Post Office Box 111, Bishop's Court Hill, Saint Michael, Barbados, West Indies, (BB), (Proprietor designated states: all)
INVENTOR:
FLEISCHMAN, Sidney, D., 855 Woodland Avenue, Menlo Park, CA 94025, (US)
THOMPSON, Russell, B., 123 West Portola Avenue, Los Altos, CA 94022, (US)
PANESCU, Dorin, 382 North Fair Oaks, No. 4, Sunnyvale, CA 94086, (US)
SWANSON, David, K., 877 Heatherstone Way, Mountain View, CA 94040, (US)
LEGAL REPRESENTATIVE:
Viering, Jentschura & Partner (100645), Postfach 22 14 43, 80504 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 955917 A1 991117 (Basic)
EP 955917 B1 020612
WO 9717904 970522
APPLICATION (CC, No, Date): EP 96939661 961108; WO 96US18101 961108
PRIORITY (CC, No, Date): US 558131 951113
DESIGNATED STATES: DE; ES; FR; GB; IT; NL; SE
INTERNATIONAL PATENT CLASS: A61B-018/00; A61B-018/12
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200224	475
CLAIMS B	(German)	200224	507
CLAIMS B	(French)	200224	537
SPEC B	(English)	200224	4461
Total word count - document A			0
Total word count - document B			5980
Total word count - documents A + B			5980

20/3/10
DIALOG(R)File 348:EUROPEAN PATENTS

00771389
FLEXIBLE **ELECTRODE SUPPORT STRUCTURE**
FLEXIBLE **ELEKTRODENSTRUKTUR**
STRUCTURE FLEXIBLE **SUPPORTANT DES ELECTRODES**
PATENT ASSIGNEE:
Boston Scientific Limited, (2711510), The Financial Services Centre, P.O. Box 111, Bishop's Court Hill, St. Michael, Barbados, (BB), (Proprietor designated states: all)
INVENTOR:
FLEISCHMAN, Sidney, D., 855 Woodland Avenue, Menlo Park, CA 94025, (US)
WHAYNE, James, G., 17930 Los Felice Road, Saratoga, CA 95070, (US)
BOURNE, Thomas, M., 2650 California Street No. 96, Mountain View, CA 94040, (US)
SWANSON, David, K., 877 Heatherstone Way, Mountain View, CA 94040, (US)
LEGAL REPRESENTATIVE:
MacGregor, Gordon (33391), Eric Potter Clarkson, Park View House, 58 The Ropewalk, Nottingham NG1 5DD, (GB)
PATENT (CC, No, Kind, Date): EP 784453 A1 970723 (Basic)
EP 784453 A1 980107

EP 784453 B1 030924
WO 96010961 960418
APPLICATION (CC, No, Date): EP 95936321 951006; WO 95US13128 951006
PRIORITY (CC, No, Date): US 320198 941007; US 320284 941011; US 320286 941011; US 321092 941011; US 321423 941011; US 321424 941011
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE
INTERNATIONAL PATENT CLASS: A61B-018/14; A61N-001/05
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200339	349
CLAIMS B	(German)	200339	459
CLAIMS B	(French)	200339	374
SPEC B	(English)	200339	10780
Total word count - document A			0
Total word count - document B			11962
Total word count - documents A + B			11962

20/3/11
DIALOG(R)File 348:EUROPEAN PATENTS

00764922
APPARATUS FOR ABLATION
ABLATIONSGERAT
DISPOSITIF POUR L'ABLATION
PATENT ASSIGNEE:
MEDTRONIC, INC., (209272), 7000 Central Avenue N.E., Minneapolis, Minnesota 55432-3576, (US), (Proprietor designated states: all)
INVENTOR:
MULIER, Peter, M.J., 1408 Forest Lane, St. Paul, MN 55112, (US)
HOEY, Michael, F., 5733 Pond Drive, Shoreview, MN 55126, (US)
LEGAL REPRESENTATIVE:
Hughes, Andrea Michelle (75891), Frank B. Dehn & Co., European Patent Attorneys, 179 Queen Victoria Street, London EC4V 4EL, (GB)
PATENT (CC, No, Kind, Date): EP 779794 A1 970625 (Basic)
EP 779794 B1 030423
WO 96007360 960314
APPLICATION (CC, No, Date): EP 95927486 950728; WO 95US9478 950728
PRIORITY (CC, No, Date): US 303246 940908
DESIGNATED STATES: DE; FR; GB; IT; NL; SE
RELATED DIVISIONAL NUMBER(S) - PN (AN):
EP 1149564 (EP 2001119071)
INTERNATIONAL PATENT CLASS: A61B-018/00
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200317	290
CLAIMS B	(German)	200317	288
CLAIMS B	(French)	200317	326
SPEC B	(English)	200317	5569
Total word count - document A			0
Total word count - document B			6473
Total word count - documents A + B			6473

John Sims EIC 3700 308-4836

20/3/12
DIALOG(R)File 348:EUROPEAN PATENTS

00700719
Steerable **medical probe with stylets**
Fuhrbare medizinische Sonde mit Stilette
Sonde medicale guidable avec des stylets
PATENT ASSIGNEE:
VIDAMED, INC., (1770891), 1380 Willow Road, Suite 101, Menlo Park, CA 94025, (US), (applicant designated states: AT;BE;CH;DE;DK;ES;FR;GB;GR;IE;IT;LI;LU;MC;NL;PT;SE)
INVENTOR:
Lundquist, Ingemar H., 17 Mile Drive at the Dunes, Pebble Beach, California 93953, (US)
Edwards, Stuart D., 1681 Austin Avenue, Los Altos, California 94024, (US)
LEGAL REPRESENTATIVE:
Harrison, David Christopher et al (31532), MEWBURN ELLIS York House 23 Kingsway, London WC2B 6HP, (GB)
PATENT (CC, No, Kind, Date): EP 667126 A1 950816 (Basic)
EP 667126 B1 990317
APPLICATION (CC, No, Date): EP 94305088 940712;
PRIORITY (CC, No, Date): US 109190 930819
DESIGNATED STATES: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE
INTERNATIONAL PATENT CLASS: A61B-017/39; A61B-017/22; A61N-005/04; A61N-001/06;
ABSTRACT WORD COUNT: 279

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9911	553
CLAIMS B	(German)	9911	556
CLAIMS B	(French)	9911	601
SPEC B	(English)	9911	8866
Total word count - document A			0
Total word count - document B			10576
Total word count - documents A + B			10576

15/3,KWIC/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

6966270 INSPEC Abstract Number: A2001-15-8760F-007, B2001-08-4360H-001
Title: Linear lesions in myocardium created by Nd:YAG laser using diffusing optical fibers: in vitro and in vivo results
Author(s): Fried, N.M.; Lardo, A.C.; Berger, R.D.; Calkins, H.; Halperin, H.R.
Author Affiliation: Dept. of Biomed. Eng., Johns Hopkins Univ., Baltimore, MD, USA
Journal: Lasers in Surgery and Medicine vol.27, no.4 p.295-304
Publisher: Wiley,
Publication Date: 2000 Country of Publication: USA
CODEN: LSMEDI ISSN: 0196-8092
SICI: 0196-8092(2000)27:4L.295:LLMC;1-S
Material Identity Number: C943-2001-002
Language: English
Subfile: A B

Abstract: Linear lesions may be necessary for successful **catheter ablation** of cardiac arrhythmias such as atrial fibrillation. This study uses laser energy delivered through diffusing optical fibers as an alternative to radiofrequency energy for the...
... placed in a heated, circulating saline bath and irradiated with a 1.06-mu m, continuous-wave Nd:YAG laser during in vitro studies. Laser **ablation** was then performed in vivo on the epicardial surface of the right ventricle during an open-chest procedure by using similar **ablation** parameters. Laser energy was delivered to the tissue by being diffused radially through **flexible** optical fiber tips oriented parallel to the tissue surface. Histology and temperature measurements verified transmurality, continuity, and linearity of the lesions. Peak tissue temperatures measured...

... that tissue perfusion in vivo did not significantly alter the heating. In conclusion, long linear lesions, necessary for duplication of the surgical maze procedure during **catheter ablation** of atrial fibrillation, may be created by using laser radiation delivered through **flexible** diffusing optical fiber tips. Further development of **steerable catheters** for endocardial atrial **ablation** and studies correlating thermal damage zones with electrophysiologic indicators of irreversible conduction block are warranted.
...Identifiers: laser **ablation** ; ...

... **flexible** optical fiber tips

15/3,KWIC/2 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

02976550 INSPEC Abstract Number: A87114455, B87063821
Title: Intravascular delivery of laser energy via optical fibers
Author(s): Anderson, H.V.; Zaatari, G.S.; Leimgruber, P.P.; Roubin, G.S.; Gruentzig, A.R.
Author Affiliation: Emory Univ. Sch. of Med., Atlanta, GA, USA
Conference Title: Proceedings of the International Conference on Lasers '85 p.305-10
Editor(s): Wang, C.P.

Publisher: STS Press, McLean, VA, USA
Publication Date: 1986 Country of Publication: USA xii+838 pp.
Conference Sponsor: Soc. Opt. & Quantum Electron
Conference Date: 2-6 Dec. 1985 Conference Location: Las Vegas, NV, USA
Language: English
Subfile: A B

Abstract: Laser energy of various wavelengths is known to **ablate** atherosclerosis, both in vitro and in vivo, but its application in small arteries has been limited by lack of useful delivery systems. Optical fibers, small enough and generally **flexible** enough to be **maneuvered** through arteries, can be used to deliver laser energy intravascularly, but problems exist with the optical fibers. An operator's ability to **maneuver** **catheter** devices in small arteries improved with the introduction of **steerable** guidewires. A **catheter** with an optical fiber which together are **maneuvered** over a guidewire may cause little or no mechanical damage to arterial walls. Coaxial alignment of an optical fiber should also be maintained. The authors investigated this ability by constructing a No. 4.5F **catheter** with a **steerable** guidewire and an optical fiber. Single argon laser exposures were made at 3 abdominal aorta sites in each of 14 atherosclerotic rabbits. Laser power levels...

... less than 120 joules. Laser effects on arterial walls were noted a many sites and were consistent with thermal changes. These data suggest that a **catheter** with a **steerable** guidewire permits safe intravascular manipulation of an optical fiber, improves coaxial alignment in an arterial lumen, and permits substantial laser energy delivery into small atherosclerotic...
...Identifiers: atherosclerosis **ablation** ; ...

... **catheter** devices...

... **steerable** guidewires

15/3,KWIC/3 (Item 1 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013740907 BIOSIS NO.: 200200334418
Method and apparatus for cryogenic spray ablation **of gastrointestinal mucosa**
AUTHOR: Johnston Mark H (Reprint); Cartledge Jennifer B
AUTHOR ADDRESS: Rockville, MD, USA**USA
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1258 (1): May 7, 2002 2002
MEDIUM: e-file
PATENT NUMBER: US 6383181 PATENT DATE GRANTED: May 07, 2002 20020507
PATENT CLASSIFICATION: 606-24 PATENT ASSIGNEE: Majerowicz; Frank, Lubberville, MD, USA PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Method and apparatus for cryogenic spray ablation **of gastrointestinal mucosa**

ABSTRACT: A method and apparatus to treat Barrett's tissue, a pre-cancerous condition, by removing the epithelium above the lower esophageal

sphincter through cryo- **ablation** . An endoscope with fiber optics is used to view the operation, and a **catheter** for supplying liquid nitrogen is passed through the lumen of the endoscope. Liquid nitrogen at low pressure is sprayed directly onto the Barrett's tissue through the **catheter** while the physician views the operation through the fiberoptics of the endoscope and controls the spray via a valve. Freezing is indicated by whiteness and shows that the epithelium has been cryoablated. The apparatus can also be used to treat various other gastrointestinal tract lesions. The **catheter** is insulated to withstand extremely cold temperatures without becoming stiff and without affecting the inherent **flexibility** and **maneuverability** of the endoscope.
DESCRIPTORS:
METHODS & EQUIPMENT: cryogenic spray **ablation** apparatus...

...cryogenic spray **ablation** of gastrointestinal mucosa...

15/3,KWIC/4 (Item 2 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013293601 BIOSIS NO.: 200100465440
Catheter
AUTHOR: Santoianni Domenic (Reprint); Nahon Daniel; Wittenberger Dan; Lalonde Jean-Pierre; Petre Cristian
AUTHOR ADDRESS: St. Leonard, Canada**Canada
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1249 (1): Aug. 7, 2001 2001
MEDIUM: e-file
PATENT NUMBER: US 6270476 PATENT DATE GRANTED: August 07, 2001 20010807
PATENT CLASSIFICATION: 604-9504 PATENT ASSIGNEE: CryoCath Technologies, Inc., Kirkland, Canada PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Catheter

ABSTRACT: A **catheter** for **ablating** tissue, for example to treat a cardiac arrhythmia, includes a handle, a shapeable shaft and a distal **ablation** segment. The shaft retains a first position until manipulated to a further position with the application of moderate manual pressure. The shaft incorporates plastically deformable elements and is shapeable to conform to an insertion path or the particular anatomy of a patient for accessing a site to be **ablated** . Once shaped, the shaft retains its shape as the **catheter** is inserted or manipulated to the predetermined tissue treatment location and the distal segment is urged into contact with the tissue site. A **deflection** mechanism may be provided to facilitate navigation to, or to **deflect** the **ablation** segment into conformal contact with, the tissue target. In a further or alternative embodiment, a second or auxiliary shaft member extends distally from the **ablation** segment, allowing the segment to be threaded by or pulled past occluding tissue to a remote target tissue site. By gripping the end of the second shaft, the **flexible** **ablation** segment may be either tensioned or pulled inward against, or flexed and pushed outward against a treatment site, such as a region of the posterior...

...providing more effective contact for a broad range of dispositions and tissue orientations. In another embodiment, a thermal shield extends over

a portion of the **ablation** segment, shielding adjacent tissue from damage while still effectively exposing the target tissue to **ablation** energy. The shield may be rotated or moved axially to delimit an area of cryogenic contact and achieve better protection of surrounding tissue structures in...
DESCRIPTORS:
METHODS & EQUIPMENT: **catheter** --

15/3,KWIC/5 (Item 3 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013097542 BIOSIS NO.: 200100269381
Method for ablation **of heart tissue**
AUTHOR: Cosio Francisco G (Reprint); Nguyen Frank; Maguire Mark A
AUTHOR ADDRESS: Madrid, Spain**Spain
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1241 (1): Dec. 5, 2000 2000
MEDIUM: e-file
PATENT NUMBER: US 6156034 PATENT DATE GRANTED: December 05, 2000 20001205
PATENT CLASSIFICATION: 606-41 PATENT ASSIGNEE: Medtronic, Inc.
PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Method for ablation **of heart tissue**

ABSTRACT: A dual curve **ablation catheter** (2), especially suited for treating atrial flutter, includes a shaft (4) with a **deflectable** tip (20) at the distal end (6) and a handle (10) at the proximal end (8). The tip includes a highly **flexible** distal segment (30), a relatively stiff intermediate segment (28) and a **flexible** proximal segment (26) so that pulling on a manipulator wire (16) attached to the distal segment causes the distal segment to curve and engage, for...

...vena cava (98) and causes the proximal segment to curve and press against the wall (110) of the inferior vena cava so to stabilize the **catheter** . **Ablation** energy can be supplied through the **ablation** electrodes (48, 68) simultaneously or one at a time to **ablate** tissue at the isthmus without the need for moving the **catheter** .
DESCRIPTORS:
METHODS & EQUIPMENT: dual curve **ablation catheter** --...

...heart tissue **ablation** method

15/3,KWIC/6 (Item 4 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0013029814 BIOSIS NO.: 200100201653
Biplanar deflectable catheter **for arrhythmogenic tissue** ablation
AUTHOR: Avitall Boaz (Reprint)
AUTHOR ADDRESS: 4868 N. Ardmore Ave., Milwaukee, WI, 53217, USA**USA
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1238 (1): Sep. 5, 2000 2000
MEDIUM: e-file

PATENT NUMBER: US 6113556 PATENT DATE GRANTED: September 05, 2000 20000905
PATENT CLASSIFICATION: 600-585 PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Biplanar deflectable catheter **for arrhythmogenic tissue** ablation

ABSTRACT: A vascular **catheter** has a highly **flexible** distal section. A biplanar control system if provided for enabling and controlling the movement of the distal **catheter** section and tip in any direction in a manner such that the distal tip is capable of accessing any point on the wall of the chamber entered. Dual-wire biplanar control system embodiments include a vertical **deflection** control wire operable to **deflect** the distal tip of the **catheter** in a controlled manner in a vertical plane substantially parallel to the longitudinal axis of the tubular **catheter** and a lateral **deflection** control wire operable to **deflect** the distal tip of the **catheter** in a controlled manner in a lateral plane substantially perpendicular to the longitudinal axis of the tubular **catheter** . A one-wire system for both vertical and lateral control is also described.
DESCRIPTORS:
METHODS & EQUIPMENT: arrhythmogenic tissue **ablation** --...

...biplanar **deflectable catheter** --

15/3,KWIC/7 (Item 5 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0012982504 BIOSIS NO.: 200100154343
Catheter **with a spirally wound flat ribbon electrode**
AUTHOR: Webster Wilton W (Reprint)
AUTHOR ADDRESS: Altadena, CA, USA**USA
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1236 (3): July 18, 2000 2000
MEDIUM: e-file
PATENT NUMBER: US 6090104 PATENT DATE GRANTED: July 18, 2000 20000718
PATENT CLASSIFICATION: 606-41 PATENT ASSIGNEE: Cordis Webster, Inc.
PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Catheter **with a spirally wound flat ribbon electrode**

ABSTRACT: An electrode **catheter** comprising a tubular body with a distal section having a **flexible** tubular portion, wherein the **flexible** tubular distal section is covered by at least one spirally wrapped flat ribbon electrode. Each spirally wrapped flat ribbon electrode has an associated lead wire that can be connected to a source of energy for **ablation** or connected to a recording system to produce electrophysiologic signals for diagnosis. The preferred **catheter** is **steerable** by use of a puller wire connected to the distal section and connected to a handle with means for controlling the movement of the puller...
DESCRIPTORS:

John Sims EIC 3700 308-4836

METHODS & EQUIPMENT: electrode **catheter** --

15/3,KWIC/8 (Item 6 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0012798912 BIOSIS NO.: 200000517225
Linear catheter ablation **system**
AUTHOR: Nelson Dale K (Reprint); Savage Steven D; Pedersen Brad D; McFarlin Whitney A
AUTHOR ADDRESS: Minneapolis, MN, USA**USA
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1234 (3): May 16, 2000 2000
MEDIUM: e-file
PATENT NUMBER: US 6063080 PATENT DATE GRANTED: May 16, 2000 20000516
PATENT CLASSIFICATION: 606-41 PATENT ASSIGNEE: Cordis Webster, Inc.
PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Linear catheter ablation **system**

ABSTRACT: A radio frequency (RF) **ablation** **catheter** system utilizes a **flexible** , tubular electrode that is selectively extendable from a distal end of a **catheter** body. The **flexible** , tubular electrode creates a continuous linear lesion when a longitudinal side of the electrode is arcuately positioned against an interior wall of the human body and the electrode is energized while a cooling fluid passes through the electrode. The **catheter** system also includes mechanisms for remotely manipulating and extending the electrode. Preferably, the **catheter** body include a **catheter** shaft and a **flexible** tip section such that the distal end of the **catheter** is **steerable** . The invention also includes a method of operating the RF **catheter** **ablation** system so as to create arcuate linear lesions.
DESCRIPTORS:
...METHODS & EQUIPMENT: radio frequency **ablation** **catheter** system {RF **ablation** **catheter** system...

... **steerable** vascular **catheter** --

15/3,KWIC/9 (Item 7 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0012576111 BIOSIS NO.: 200000294424
Catheter **system having closely spaced distal bipolar electrodes**
AUTHOR: de la Rama Alan; Chia Weng-Kwen Raymond; Tu Hosheng
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1229 (2): Dec. 14, 1999 1999
MEDIUM: e-file
PATENT NUMBER: US 6001095 PATENT DATE GRANTED: December 14, 1999 19991214
PATENT CLASSIFICATION: 606-41 PATENT ASSIGNEE: Irvine Biomedical, Inc., Irvine, CA, USA PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract

LANGUAGE: English

Catheter **system having closely spaced distal bipolar electrodes**

ABSTRACT: A **catheter** system suitable for electrophysiology mapping and radiofrequency **ablation** of cardiac tissue comprises a **catheter** shaft having a distal end, a proximal handle, and at least a lumen extending therebetween, wherein a distal section of the shaft is either a fixed curve type or a **deflectable** type; and safety means being provided to maintain the integrity of the **catheter** by holding the long tip electrode in place, wherein the safety means is a long tip electrode with an extended **flexible** stem having at least one open groove or slot on the stem.
DESCRIPTORS:
METHODS & EQUIPMENT: **catheter** system...

...radiofrequency cardiac tissue **ablation** --

15/3,KWIC/10 (Item 8 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0012569726 BIOSIS NO.: 200000288039
Stabilized electrophysiology catheter **and method for use**
AUTHOR: Willems Stephan; Weiss Christian; Nguyen Frank (Reprint); Gaiser John W; McIntosh Scott A
AUTHOR ADDRESS: San Jose, CA, USA**USA
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1229 (2): Dec. 14, 1999 1999
MEDIUM: e-file
PATENT NUMBER: US 6002955 PATENT DATE GRANTED: December 14, 1999 19991214
PATENT CLASSIFICATION: 600-374 PATENT ASSIGNEE: Medtronic, Inc., Minneapolis, MN, USA PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Stabilized electrophysiology catheter **and method for use**

ABSTRACT: A stabilized electrophysiology **catheter** (4) includes a main body portion (16) and a **flexible** tip portion (18). A plurality of electrodes (24, 26) are positioned along the tip portion. The tip portion includes a main section (20) and a...

...opening, typically the coronary sinus opening (48) in the right atrium or a pulmonary vein opening (82) in the left atrium, for stabilized mapping and **ablation** of the right atrium or the left atrium. A manipulator wire (36) is used to radially **deflect** the tip portion in a first direction (40). When introduced through the superior vena cava (46), the tip portion forms a generally J-shape. When introduced through the inferior vena cava (54), the tip portion is **deflected** more than 360degree.
DESCRIPTORS:
METHODS & EQUIPMENT: stabilized electrophysiology **catheter** --

15/3,KWIC/11 (Item 9 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0012564747 BIOSIS NO.: 200000283060
Catheter **system having safety means and methods thereof**
AUTHOR: de la Rama Alan (Reprint); Chia Weng-Kwen Raymond; Tu Hosheng
AUTHOR ADDRESS: Tustin, CA, USA**USA
JOURNAL: Official Gazette of the United States Patent and Trademark Office Patents 1228 (5): Nov. 30, 1999 1999
MEDIUM: e-file
PATENT NUMBER: US 5992418 PATENT DATE GRANTED: November 30, 1999 19991130
PATENT CLASSIFICATION: 128-898 PATENT ASSIGNEE: Irvine Biomedical , Inc., Wilmette, IL, USA PATENT COUNTRY: USA
ISSN: 0098-1133
DOCUMENT TYPE: Patent
RECORD TYPE: Abstract
LANGUAGE: English

Catheter **system having safety means and methods thereof**

ABSTRACT: The method for using a **catheter** system suitable for electrophysiology mapping and radiofrequency **ablation** of cardiac tissue comprises a **catheter** shaft having a distal end, a proximal handle, and at least one lumen extending therebetween, wherein a distal section of the shaft is either a fixed curve type or a **deflectable** type; and a safety means provided to maintain the integrity of the **catheter** , by anchoring the tip electrode in place. In one embodiment, the safety means is a tip electrode with safety anchoring pins. In another embodiment, the safety means is a long tip electrode with an extended **flexible** stem having at least one open slot or groove or groove on the stem.
DESCRIPTORS:
METHODS & EQUIPMENT: **catheter** system...

...radiofrequency **ablation** --

15/3,KWIC/12 (Item 10 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0007334805 BIOSIS NO.: 199090119284
PERCUTANEOUS CORONARY EXCIMER LASER ANGIOPLASTY
AUTHOR: KARSCH K R (Reprint); HAASE K K; MAUSER M; VOELKER W; BAUMBACH A; SEIPEL L
AUTHOR ADDRESS: MEDIZINISCHE KLINIK DER UNIVERSITAET, ABTEILUNG III, OTFRIED-MUELLER-STRASSE 10, D-7400 TUEBINGEN, FRG**WEST GERMANY
JOURNAL: Herz 15 (4): p233-240 1990
ISSN: 0340-9937
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

ABSTRACT: Available preliminary clinical studies have shown that **ab**lation of atherosclerotic plaques can be achieved by means of pulsed excimer laser coronary angioplasty via **flexible** energy transmission systems. The goal of current studies using improved **catheter** technology is to enhance the acute success rate since, based on initial studies, it can be assumed that only about 40 to 45% of the...

...which employ a wavelength of 30* nm but differing pulse widths and transmission systems. In the first American multicenter study by Litvack

and Margolis a **catheter** system was used with a pulse width of 180 to 220 ns. The fibers have a shaft diameter of 100 .mu.m with a conically-thickened distal end measuring 200 .mu.m, the **ablative** area encompasses 35 to 45% of the total **catheter** tip surface. The excimer laser used in the second American multicenter study by Sanborn and Isner has a pulse width of 120 ns. This **catheter** is relatively unflexible due to the 200 .mu.m fiber diameter. The **ablative** **cat**heter tip area is 25 to 30%. In Tubingen a system was used with a pulse width of 60 ns. The energy is transmitted through fibers with a diameter of 100 .mu.m. The effective **ablative** area in the first series of patients was about 15%, in the second series about 25 to 30%. At present, the energy density of all...

...the question of whether a shorter pulse width of comparable energy, density is more effective than the long pulse width, remains an open issue. The **flexibility**0 of the systems used by Margolis and in Tubingen enable **ablation** not only of proximal, but also arteriosclerotic plaques located in middle-third of vessels. The **flexibility** and **steerabiliy** , however, are inferior to galloon **catheter** systems. In the study carried out by Litvack and Marglis, in which more than 600 patients have been treated, and the results from 514 patients reported, there was no patient selection in the first series. The study by Sanborn and Isner included 88 patients. Due to the relatively unflexible **catheter** system, only hose patients were treated who had proximal stenosis of the left anterior descending or right coronary arthery or marignal branches of the circumflex...

...performed only in the study of Sanborn and Isner. In the other two studies, the necessity for dilatation was based on the results of laser **ablation** . Performance of the laser **ablation** was similar in all three studies. After advancing the laser **cathe**ter by means of a 0.014 or 0.018 inch high-torque floppy guidewire, energy is applied for intervals of three seconds each with a frequency of 20 Hz in the stenotic area and slight pressure is delivered to the **catheter** . Energy application is repeated after intervals of two seconds. After the stenosis has been penetrated, energy is again applied during slow withdrawal. Angiography is performed...
DESCRIPTORS: HUMAN ATHEROSCLEROSIS BALLOON **CATHETER**

15/3,KWIC/13 (Item 11 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

0006801362 BIOSIS NO.: 198988116477
EXPERIENCE WITH ROTATION ATHEROTOMY AND ATHERECTOMY
AUTHOR: STECKMEIER B (Reprint); BAUMGART R; KUEFFER G; SCHWEIBERER L
AUTHOR ADDRESS: CHIRURG KLIN INNENSTADT CHIRURGISCHE POLIKLIN UNIV, NUSSBAUMSTR 20, D-8000 MUENCHEN 2**WEST GERMANY
JOURNAL: Herz 14 (1): p43-51 1989
ISSN: 0340-9937
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: GERMAN

...ABSTRACT: together with local thrombolysis, important new developments based on mechanical principles are the atherectomy according to Simpson as well as the rotation atherotomy with a **flexible** **catheter** and slowly rotating milling head or rapidly rotating head as used by Kensey. To provide a larger lumen of recanalization, we developed an atherotomy

lathing **catheter** with a rapidly rotating head and various diameters which is now available for intraoperative use. The thrombendarterectomy as described by Vollmar with the "ring stripper" is used only intraoperatively and can only be performed retrograde. The effect of laser systems encompasses disintegration and **ablation** of occlusive material. The rotation atherotomy is based on the capability of discrimination between hard occlusive material and elastic vascular wall through suitable construction of the lathe head. Since, in passive **catheters** , the capability of lathing at the tip is associated with a high risk of perforation and a lateral possibility for lathing is not achievable, the...

...rotation at the outer radius. Through combination with a spherical disc face perpendicular to the axis of rotation, which protrudes only slightly from the hemispherical **catheter** tip, with a maximum at the center and minimum at the lateral borders, the lathing head has only a slight risk of perforation and no...

...7 .mu.m, only isolated, clinically not relevant emboli are incurred. The prototypes developed function at 10,000 to 50,000 r.p.m. The **catheter** we have developed should be introduced 3 to 4 cm distal to the origin of the artery femoris profunda, after placement of a tourniquet, through...

...in occlusions longer than 5 cm, the recanalization is performed stepwise and, when necessary, prior to re-establishing patency in the last segment, a Fogarty **maneuver** is incorporated. With this **catheter** , in seven of ten patients in stages III and IV, successful recanalization was achieved. For the use of the rotation lathe **catheter** , establishment of the indication should still be restrictive since too little experience is available to assess accurately the relevance of the debris. Its use appears...

...bypass graft can be constructed or, if the debris consists of particles between 10 and 100 .mu.m, they can be removed with a Fogarty **catheter** . The Simpson atherectomy **catheter** consists of a windowed-metal housing with a centrally-rotating, displaceable blade which is driven by a long **flexible** shaft. Juxtaposed to the cutting blade is an inflatable balloon. A **flexible** guidewire at the tip of the metal housing enables intraluminal **steering** . After introduction of the **catheter** with sheath technique, the metal housing is positioned through inflation of the balloon with the obstructive plaque at the opening. At 2,000 r.p.m. the cutting blade is activated and the debris is stored in the bow of the housing. The **catheter** is available in sizes 7, 9 and 11 French. With this **catheter** , successful treatment was performed in 17 patients with 23 stenoses in the femoro-popliteal vessels and four stenoses in the pelvic region; three of the...

...to 44 weeks showed no residual stenoses. Since the first clinical trials in 1986, now more than 130 patients have been treated with the atherectomy **catheter** . After atherectomy, the vascular walls appear smooth and, typically, with no tears in the intima. The indication appears established for excentric, calcified or exulcerated plaques as well as for residual stenoses after ballon dilatation or dynamic rotation **catheter** angioplasty when the stenosis cannot be passed by the guidewire. The atherectomy is now regarded as complimentary to conventional PTA methods and promises to improve...

15/3,KWIC/14 (Item 12 from file: 5)
DIALOG(R)File 5:Biosis Previews(R)

John Sims EIC 3700 308-4836

0006265196 BIOSIS NO.: 198886105117
A NEW CATHETER **SYSTEM WITH REMOTE TIP GUIDANCE FOR ENDOBRONCHIAL BRACHYTHERAPY**
AUTHOR: RIEKE J W (Reprint); GOFFINET D R; MARISCAL J M; MARK J B D
AUTHOR ADDRESS: DEP THERAPEUTIC RADIOL, STANFORD UNIV SCH MED, STANFORD, CA 94305, USA**USA
JOURNAL: International Journal of Radiation Oncology, Biology, Physics 15 (2): p449-454 1988
ISSN: 0360-3016
DOCUMENT TYPE: Article
RECORD TYPE: Abstract
LANGUAGE: ENGLISH

A NEW CATHETER **SYSTEM** WITH REMOTE TIP GUIDANCE FOR ENDOBRONCHIAL **BRACHYTHERAPY**

...ABSTRACT: is being used with increased frequency in the treatment of recurrent neoplastic obstruction of the major airways, alone or in combination with Nd-YAG laser **ablation** of the occluding tumor mass. Currently available **catheter** systems are not reliable with respect to accurate and simple bronchoscopic guidance during placement. **Flexibility** , wall strength and radiation transmission characteristics are not optimized. We describe a system that meets these goals which has been designed and tested in our department. It is composed of an external handle, **deflecting** guidewire, and **catheter** specially modified for endobronchial brachytherapy, with a tip that can be **maneuvered** in any direction with one hand from outside the patient. Major advantages of the system are ease of concurrent bronchoscopy and **catheter** guidance, good dosimetric characteristics of the **catheter** , reasonable cost, and ready availability for adaptation to various techniques for endobronchial brachytherapy.

15/3,KWIC/15 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

11080111 Genuine Article#: 605FL No. References: 7
Title: Clinical use of AcuNav diagnostic ultrasound catheter **imaging during left heart radiofrequency** ablation **and transcatheter closure procedures**
Author(s): Ren JF (REPRINT) ; Marchlinski FE; Callans DJ; Herrmann HC
Corporate Source: Univ Penn,Cardiac Electrophysiol Res Lab, Presybterian Med Ctr, Sch Med,Div Cardiovasc Me,MSRL Bldg,39th & Market St/Philadelphia//PA/19104 (REPRINT); Univ Penn,Cardiac Electrophysiol Res Lab, Presybterian Med Ctr, Sch Med,Div Cardiovasc Me,Philadelphia//PA/19104
Journal: JOURNAL OF THE AMERICAN SOCIETY OF ECHOCARDIOGRAPHY, 2002, V15, N10,2 (OCT), P1301-1308
ISSN: 0894-7317 Publication date: 20021000
Publisher: MOSBY, INC, 11830 WESTLINE INDUSTRIAL DR, ST LOUIS, MO 63146-3318 USA
Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

Title: Clinical use of AcuNav diagnostic ultrasound catheter **imaging during left heart** radiofrequency ablation **and transcatheter closure procedures**
Abstract: Background. AcuNav ultrasound **catheter** (UC) (10F, 5.5-10 MHz)

John Sims EIC 3700 308-4836

has unique advantages for left heart imaging with its 4-way tip **flexible maneuverability** , maximal 16-cm intracardiac imaging depth, and Doppler and color flow imaging capability.

Methods: We assessed the initial use of this UC in 40 consecutive patients (34 men; age 53 11 years old). All patients were also undergoing transseptal **catheterization** for percutaneous **catheter** mapping and **ablation** of either left atrium (focal initiated atrial arrhythmia/fibrillation, n = 32) or left ventricle (ventricular tachycardia, n 4), or transcatheter atrial septal defect closure (n...

...the UC was placed in the right atrium, superior vena cava, or right ventricular inflow/outflow tract.

Results. In all patients, UC successfully guided transseptal **catheterization** and provided imaging of normal or aberrant anatomy of the right/left atrial (interatrial septum, fossa ovalis, appendages, 4 pulmonary vein ostia) and right/left...

...n = 2, early elimination with management of the sheath). With Doppler and color flow imaging, UC provided effective monitoring of increased flow velocity of all **ablated** pulmonary vein ostia and detection of patent foramen ovale (n = 6) or residual trivial/small atrial septal defect posttransseptal **catheterization** (n = 2). UC was also used to successfully image and guide transcatheter closure of atrial septal defect with positioning of the cardioseal septal occluder (Nitinol...

...and color Doppler imaging of no significant residual shunt.

Conclusion: AcuNav UC with Doppler and color flow imaging has significant use, especially during left heart **ablation** . Uses include guidance of transseptal and mapping/ **ablation** **catheters** and closure devices, and prompt diagnosis of cardiac complications.

15/3,KWIC/16 (Item 2 from file: 34)

06002838 Genuine Article#: XN545 No. References: 38
Title: Transcatheter neodymium-yttrium-aluminum-garnet laser coagulation of canine ventricle using a balloon-tipped cardioscope
Author(s): Hirao K (REPRINT) ; Yamamoto N; Toshida N; Nawata H; Ishihara N; Suzuki F; Miyasaka N; Hiejima K; Tanaka M
Corporate Source: TOKYO MED & DENT UNIV,SCH MED, DEPT INTERNAL MED 1, BUNKYO KU, 1-5-45 YUSHIMA/TOKYO 113//JAPAN/ (REPRINT); TOKYO MED & DENT UNIV,SCH MED, DEPT ALLIED HLTH SCI, BUNKYO KU/TOKYO 113//JAPAN/; TOKYO METROPOLITAN HIROO GEN HOSP,DEPT PATHOL/TOKYO//JAPAN/
Journal: JAPANESE CIRCULATION JOURNAL-ENGLISH EDITION, 1997, V61, N8 (AUG) , P695-703
ISSN: 0047-1828 Publication date: 19970800
Publisher: JAPAN CIRCULATION SOC, KINKI INVENTION CENTER 14 YOSHIDA KAWAHARACHO, KYOTO 606, JAPAN
Language: English Document Type: ARTICLE (ABSTRACT AVAILABLE)

Abstract: The feasibility of transcatheter laser **ablation** of the canine left ventricle (LV) was tested using a newly developed cardioscope, In 17 anesthetized dogs, a combined laser-endoscope **catheter** , consisting of an endoscope encased in a 7-French **flexible** **catheter** with an inflatable and transparent balloon at the distal end, was introduced

into the LV via the carotid artery, A 1064-nm neodymium-yttrium-aluminum...

...applied sequentially in 13 dogs and laser irradiation was completed in all but 2 of the dogs, The excised hearts revealed well-demarcated oval-shaped **lesions** 2.5-9.5 mm deep in 7 of 11 dogs. Histologic sections revealed coagulation necrosis surrounded by a rim of contraction band necrosis, Thus, transballoon laser photocoagulation of the beating LV is feasible, The newly combined laser-endoscope **catheter** , which is still in its preliminary stages and needs to be improved to increase the success rate of photocoagulation, appears to be a promising alternative modality for **catheter ablative** therapy for ventricular tachycardia.

...Identifiers--RADIOFREQUENCY **CATHETER ABLATION** ; ACCESSORY ATRIOVENTRICULAR **PATHWAYS** ; ATRIAL-FLUTTER; MYOCARDIAL-INFARCTION; REENTRANT CIRCUIT; SLOW CONDUCTION; SHOCK **ABLATION** ; VENA-CAVA; TACHYCARDIA; DOGS

Research Fronts: 95-1842 007 (RADIOFREQUENCY **CATHETER ABLATION** ; ATRIOVENTRICULAR NODAL REENTRANT TACHYCARDIA; CLINICAL OUTCOMES)

15/3,KWIC/17 (Item 3 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

02692479 Genuine Article#: LW658 No. References: 0

Title: EFFECTIVENESS AND SAFETY OF ULTRASONIC ATHEROSCLEROTIC PLAQUE ABLATION - IN-VITRO INVESTIGATION

Author(s): MULLERLEISSE C; SCHMITZRODE T; BOHM U; BIESTERFELD S; HOLLWEG G; KIRKPATRICK CJ; GUNTHER RW

Corporate Source: RWTH UNIV TECHNOL,INST DIAGNOST RADIOL,PAUWELSSTR 30/D-52057 AACHEN//GERMANY/

Journal: CARDIOVASCULAR AND INTERVENTIONAL RADIOLOGY, 1993, V16, N5 (SEP-OCT), P303-307

ISSN: 0174-1551

Language: ENGLISH Document Type: ARTICLE (Abstract Available) (NO REFS KEYED)

Title: EFFECTIVENESS AND SAFETY OF ULTRASONIC ATHEROSCLEROTIC PLAQUE ABLATION - IN-VITRO INVESTIGATION

...Abstract: fibrous plaque using a forward force of 2 Newton and 45 sec of application time. Injury of healthy intima was minimal. It is concluded that **catheter** -delivered ultrasound is effective and safe for the disintegration of atherosclerotic plaques. Presently, the main limitations of the system are the lack of **flexibility** and **steerability** .

15/3,KWIC/18 (Item 1 from file: 73)

DIALOG(R)File 73:EMBASE

11878039 EMBASE No: 2002449858

A novel catheter **design for laser photocoagulation of the myocardium to ablate ventricular tachycardia**

Wagshall A.; Abela G.S.; Maheshwari A.; Gupta A.; Bowden R.; Stephen Huang S.K.

Dr. G.S. Abela, Department of Cardiology, Michigan State University, B-208 Clinical Center, East Lansing, MI 48824 United States

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Journal of Interventional Cardiac Electrophysiology (J. INTERVENT. CARD. ELECTROPHYSIOL.) (Netherlands) 2002, 7/1 (13-22)
CODEN: JICEF ISSN: 1383-875X
DOCUMENT TYPE: Journal ; Article
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH
NUMBER OF REFERENCES: 36

A novel catheter **design for laser photocoagulation of the myocardium to** ablate **ventricular tachycardia**

Nd:YAG laser energy has been proposed as an alternative to radiofrequency energy for **ablation** of ventricular tachycardia (VT) associated with coronary artery disease (CAD) in an effort to increase lesion size and success rates. However, issues of **catheter** design to maintain **flexibility** and ensure adequate tissue contact have hindered development of laser **catheters** . We developed and tested a prototype 8 Fr. **steerable catheter** with a **flexible** and extendible tip (designed to ensure tissue contact and efficient ventricular mapping), which projects the laser beam through a side port containing a lens-tipped optical fiber that rests against the endocardial surface. The **catheter** has a channel for simultaneous saline irrigation to displace the interceding blood and discharge a laser beam between two electrodes for bipolar mapping and a thermocouple for temperature monitoring. The **catheter** was tested on bench top using the epicardial surface of freshly slaughtered bovine hearts and in vivo using six anaesthetized closed-chest sheep. In vitro...

...coagulation necrosis with smooth well-demarcated borders. No animal suffered cardiac perforation, hypotension, hemopericardium, damage to cardiac valves, or cavitation effect from any of the **ablations** . Runs of VT were seen during energy application at the highest laser outputs in two animals. In conclusion, this **catheter** design provides effective endocardial delivery of laser energy and is capable of creating transmural or nearly transmural lesions in vivo and in vitro, thereby potentially increasing the efficiency of VT **ablation** in CAD patients.
MEDICAL DESCRIPTORS:
*heart **catheterization** ; *laser coagulation; *heart ventricle tachycardia --therapy--th
heart muscle cell; neodymium laser; coronary artery disease; temperature measurement; sheep; hypotension; hemopericardium; valvular heart disease; **catheter ablation** ; human; article; priority journal

15/3,KWIC/19 (Item 2 from file: 73)
DIALOG(R)File 73:EMBASE

04001064 EMBASE No: 1989170060
Laser ablation **and the need for intraarterial imaging**
Borst C.; Rienks R.; Mali W.P.T.M.; Van Erven L.
Department of Cardiology, Heart-Lung Institute, Interuniversity Cardiology Institute of the Netherlands, 3511 GV Utrecht Netherlands
International Journal of Cardiac Imaging (INT. J. CARD. IMAGING) (Netherlands) 1989, 4/2-4 (127-133)
CODEN: IJCIE ISSN: 0167-9899
DOCUMENT TYPE: Journal
LANGUAGE: ENGLISH SUMMARY LANGUAGE: ENGLISH

Laser ablation **and the need for intraarterial imaging**

...a 2.2 mm diameter rounded sapphire contact probe in conjunction with a

continuous wave Nd:YAG laser. In eight patients the contact probe laser **catheter** took a subintimal course that could not be redressed. Laser recanalization needs high-resolution diagnostic information of the complex anatomy of the obstruction. Intra-arterial ultrasound imaging may provide the necessary information to evaluate, monitor or guide novel angioplasty techniques. The design of an ultrasound **catheter** which combines high-resolution diagnostic imaging with **steerability** , **flexibility** and controlled **ablation** is now the major engineering challenge in interventional cardiology.

15/3,KWIC/20 (Item 3 from file: 73)
DIALOG(R)File 73:EMBASE

03709306 EMBASE No: 1988158742
Experimental and clinical angioplasty with a laser probe fiberoptic catheter **system**
Sanborn T.A.
Evans Memorial Department of Clinical Research, University Hospital, Boston University Medical Center, Boston, NY United States
Thoracic and Cardiovascular Surgeon (THORAC. CARDIOVASC. SURG.) (Germany) 1988, 36/SUPPL. 2 (133-136)
CODEN: TVCHA ISSN: 0171-6425
DOCUMENT TYPE: Journal
LANGUAGE: ENGLISH SUMMARY LANGUAGE: GERMAN; ENGLISH

Experimental and clinical angioplasty with a laser probe fiberoptic catheter **system**

The **ablation** of atherosclerotic tissue by laser energy was a promising new idea in the treatment of atherosclerotic vascular diseases. Initial studies showed a lot of beneficial...

...of this so called 'hot-tip' in coronary arteries proved the possibility of reopening stenoses or occlusions in the small vessels. Still further improvements in **flexibility** and **steerability** of the **catheter** systems have to be made, before this method can become routine too. By further improvement laser angioplasty will find its place besides belloon angioplasty and...

15/3,KWIC/21 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

10189937 22223596 PMID: 12238842
Intraoperative radiofrequency ablation **of the atrium: effectiveness for treatment of supraventricular tachycardia in congenital heart surgery.**
Kopf Gary S; Mello Dennis M; Kenney Katherine M; Moltedo Jose; Rollinson Nancy R; Snyder Christopher S
Department of Surgery, Yale University School of Medicine, New Haven, Connecticut 06510, USA. gary.kopf@yale.edu
Annals of thoracic surgery (United States) Sep 2002, 74 (3) p797-804; discussion 804, ISSN 0003-4975 Journal Code: 15030100R
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Intraoperative radiofrequency ablation **of the atrium: effectiveness for treatment of supraventricular tachycardia in congenital heart surgery.**

BACKGROUND: Supraventricular tachycardia (SVT) is common in surgical patients with congenital heart disease. **Ablation** and maze operations have been shown to be effective in treating SVT, but these procedures can be complex and time-consuming because of variable anatomy and a thickened right atrium. To simplify and shorten these procedures, we used a long, **flexible** radiofrequency probe capable of producing long **ablation** lines quickly and effectively. We report the initial results with this procedure. METHODS: Six patients aged 6 weeks to 40 years with refractory SVT were referred for reoperation for repair of complex congenital heart disease (transposition of the great vessels, Ebstein's anomaly, single ventricle, tetralogy of fallot). Intraoperative radiofrequency **ablation** was performed in the right atrium for refractory SVT as an adjunct to surgical reconstruction (redo Fontan, right atrial reduction plasty, right ventricular outflow tract reconstruction, tricuspid repair). **Lesions** were made with a radiofrequency probe using temperatures of 70 degrees C for 60 seconds. **Lesions** were placed between the coronary sinus and the tricuspid valve, between the tricuspid valve and the inferior vena cava, between the atrial septal defect and the superior and inferior vena cava in patients with intraatrial reentry tachycardia/atrial flutter, and at the location of the accessory **pathway** in a patient with Wolff-Parkinson-White syndrome. The long, **flexible** probe has multiple independently controlled segments allowing **ablation lesions** that conform to the atrial morphology. RESULTS: An average of five intraoperative radiofrequency **ablation lesions** per patient were made. Average time for **ablation** was 14 minutes. With up to 25 months' follow-up, 5 patients are in sinus rhythm, and 1 is in a paced atrial rhythm. The patient with Wolff-Parkinson-White syndrome showed no preexcitation after operation. No complications resulting from intraoperative radiofrequency **ablation** were encountered. CONCLUSIONS: Intraoperative radiofrequency **ablation** in the atrium is a safe, effective, and expeditious procedure for control of SVT in patients undergoing reoperation for congenital heart disease with refractory SVT.

Descriptors: **Catheter Ablation** ; *Heart Atrium--surgery--SU; *Heart Defects, Congenital--surgery--SU; *Intraoperative Complications--surgery --SU; *Tachycardia, Supraventricular--surgery--SU

15/3,KWIC/22 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

06145058 89160472 PMID: 2466257

Advances in catheter ablation **use of unipolar electrograms.**

Fletcher R; Swartz J; Lee B; Cohen A; Wish M; Jones J

Section of Cardiology, Veterans Administration Medical Center, Washington, D.C. 20422.

Pacing and clinical electrophysiology - PACE (UNITED STATES) Jan 1989, 12 (1 Pt 2) p225-30, ISSN 0147-8389 Journal Code: 7803944

Document type: Journal Article

Languages: ENGLISH

Main Citation Owner: NLM

Record type: Completed

Advances in catheter ablation **use of unipolar electrograms.**

... and methods for localizing arrhythmias. Methods to assure contact and prevent perforation using low frequency electrograms are presented including the new finding of reverse ST **deflection** with contact. Experience with laser energy in dogs showed discrete homogenous lesions. When compared with DC shock the animals showed far less arrhythmia and the

...

... reduced echo abnormalities in the post shock period. Studies with radiofrequency show ability to produce localized lesions similar to the laser but with a more **flexible catheter** . Localization requires a correlation of techniques including pacemapping, activation maps and pacing during tachycardia. Early activation (less than -60 ms) at times 180-320 ms
...
?

John Sims EIC 3700 308-4836

15/3,KWIC/1 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

10654351 Supplier Number: 106551685 (USE FORMAT 7 FOR FULLTEXT)
Cardima Announces U.S. Market Launch of Surgical Ablation **System; First Procedure Successfully Performed at Lenox Hill Hospital.**
Business Wire, p5278
August 13, 2003
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 847

Cardima Announces U.S. Market Launch of Surgical Ablation **System; First Procedure Successfully Performed at Lenox Hill Hospital.**

FREMONT, Calif.--(BUSINESS WIRE)--Aug. 13, 2003

Marking the U.S. market launch of Cardima(R), Inc.'s (NasdaqSC: CRDM) Surgical **Ablation** System, doctors at Lenox Hill Hospital in New York City, New York reported great success in the first case application of the system to treat...

...D., Director of Surgery/Senior Cardiac Surgeon, performed the procedure to treat a patient with a long history of chronic AF using Cardima's Surgical **Ablation** System which **ablates** cardiac tissue during heart surgery using radio frequency (RF) energy.

In the aftermath of the procedure, Dr. Loulmet, who also heads up the Atrial Fibrillation Program for Lenox Hospital, commented, "The unique technology behind the Cardima **Ablation** System proved to be a critical and powerful tool for this especially difficult case. The ease of use, the power, and the depth of penetration given the small size of the **catheter** is impressive."

"We are pleased that physicians at such an esteemed medical institution as Lenox Hill Hospital have opted to be the first to use... linear lesions that substantially replicate those of the highly successful surgical Maze procedure is a ground-breaking addition to the treatment of AF."

Cardima's **Ablation** System received 510(K) approval by the U.S. Food and Drug Administration (FDA) on February 4, 2003, to **ablate** cardiac tissue during heart surgery via the use of radio frequency (RF) energy. This system is expected to be used primarily by cardiac surgeons in consultants and one or more of them hold equity interests in the Company.

The Cardima **Ablation** System uses commercially available surgical radio frequency generators, a Cardima surgical probe with multi-electrode linear array microcatheter technology similar to the Company's REVELATION(R) Tx, a **deflectable** guiding sheath similar to the NAVIPORT(R) guiding **catheter** , and a novel power-channeling device developed by Cardima, the INTELLITEMP(TM), which allows RF energy to be applied to any single, any multiple, or all electrodes on the probe, simultaneously. The surgical **ablation** probe is also **deflectable** , allowing surgeons the **flexibility** to create lesions in various shapes as needed to complete the procedure effectively.

The Company believes that the Cardima **Ablation** System can significantly reduce the time required to form lesions and can sense tissue temperature interactively to ensure lesions are uniform, thin and linear. This...

...patients suffering from irregular heart rhythms.

About Cardima

Cardima, Inc. has developed the REVELATION(R) Tx, REVELATION(R) T-Flex and REVELATION(R) Helix linear **ablation** microcatheter systems for

the minimally invasive treatment of atrial fibrillation (AF). The REVELATION(R) Helix was developed for ...R) Tx, REVELATION(R) T-Flex and REVELATION(R) Helix systems have received CE Mark approval in Europe. The Company has also developed a Surgical **Ablation** System, which is expected to be used by cardiac surgeons for the treatment of AF, to **ablate** cardiac tissue during heart surgery using radio frequency (RF) energy. In February 2003, the Company announced that it had received FDA 510(k) clearance to market the Surgical **Ablation** System in the U.S.

Except for the historical information contained herein, the matters

15/3,KWIC/3 (Item 3 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

09778979 Supplier Number: 85932770 (USE FORMAT 7 FOR FULLTEXT)
MedPulser's efficacy seen in European trial. (Product Briefs).(several companies' products included)
The BBI Newsletter, v25, n5, p143(6)
May, 2002
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 4406

... in a pre-filled syringe to provide easy handling along with superior procedural efficiency. Like their predecessor EmboSphere Microspheres, EmboGold Microspheres minimize aggregation in the **catheter** , unwanted proximal embolization and unpredictable distal embolization due to particle fragmentation that can occur with alternative embolization products. The product was launched in the U...transplantation.

* CardioFocus (Norton, Massachusetts) received 510(k) clearance from the FDA to market its diode laser for use in surgery with the accompanying Optimaze surgical **ablation** handpiece, previously FDA-cleared for use on cardiac tissue. Together, the laser and handpiece are used to create precise lesions in the heart during cardiac surgery. The Optimaze Surgical **Ablation** System will be marketed worldwide by Edwards Lifesciences (Irvine, California). The Optimaze system creates lesions in the heart with a lessinvasive and less time-consuming...

...San Juan Capistrano, California) introduced an advanced version of its ACIS tissue microarray application with improved automation and throughput, enhanced multi-tasking, and a customized **flexible** user interface. The new features also include enhanced scoring and reporting capabilities. The ACIS tissue microarray technology allows precise characterization of multiple tissues on a...tissue, a rapidly growing population of patients. The Ultimum introducers feature a duallayer sheath cannula and new dilator configuration. The new valve design provides optimal **catheter** feel and **maneuverability** while maintaining hemostasis -- on guidewires as small as .014" -- allowing the Ultimum platform to be used in both cardiology and endovascular procedures.

* Sulzer Orthopedics (Austin...

15/3,KWIC/4 (Item 4 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

09778966 Supplier Number: 85932748 (USE FORMAT 7 FOR FULLTEXT)
'Dynamic' cardiology market offers innovations, opportunity.
Simonsen, Michael

The BBI Newsletter, v25, n5, p121(7)
May, 2002
Language: English Record Type: Fulltext
Document Type: Newsletter; Trade
Word Count: 4570

... reached a level estimated at more than $300 million worldwide, is vascular sealing devices for closure of the puncture site following a diagnostic or interventional **catheterization** procedure. Although the market is already quite competitive, with three major suppliers having established strong positions, new suppliers continue to emerge in this segment, competing...

...market development, but forecasts indicate that the sector will remain attractive for suppliers.

Major advances are occurring in interventional treatments for cardiac arrhythmia. Use of **ablation** techniques to treat atrial fibrillation appears increasingly feasible, and a number of companies, including some that are new to the electrophysiology segment, are pursuing that...

...ACC sessions. Bone marrow contains epithelial progenitor cells that appear well suited to differentiate into vascular cells. Tse has used the Cordis Biosense MyoStar injection **catheter** to inject cells into the left ventricle of eight patients with severe, untreatable coronary artery disease who had previously failed all other revascularization options (CAGB ...

...days, perhaps indicating that an incubation period is needed for the effect to develop.

TransVascular (Menlo Park, California) also is actively pursuing applications of its **catheter** -based ...restoration of contractile units in the heart and also maintaining a favorable ventricular geometry. The technique, called cellular cardiomyoplasty, uses the company's coronary venous **catheter** technology. Advantages include avoidance of shunting of cells away from the target region by blood flow, which can occur with arterial delivery, and improved access to diseased areas of the heart that may not be readily reached via an arterial **catheter** . TransVascular has developed a technique for harvesting of progenitor cells from bone marrow, preserving them in bovine collagen gel and then expanding the cells in culture prior to injection. The company's CrossPoint TransAccess **Catheter** , a 2 Fr device, is then used to perform a transvenous puncture to access the target site, and the MicroLume **Catheter** , a 27G microinjection device, is used to deploy a network of cells. Animal studies with the Trans Vascular delivery technology are in progress.

A new...

...The procedure requires only a single injection lasting a few seconds, vs. the lengthy procedure needed for targeted injection of cells. A standard diagnostic angiography **catheter** can be used for the infusion. A limiting factor at present is obtaining a sufficient number of cultured cells for infusion, although the optimum number...in the sector. In the electrophysiology arena, devices for the treatment for atrial fibrillation, long recognized as by far the largest potential opportunity in the **ablation** device segment, now appear to be closer to the market. A key breakthrough is the discovery that circumferential **ablation**0 of conduction channels around the orifices of the pulmonary veins is a very effective treatment for atrial fibrillation. AFx (Fremont, California) exhibited a new microwave surgical **ablation** device at the ACC conference that can be used to treat atrial fibrillation. The existing AFx **ablation** device is

placed on the pericardium using a port access technique. Microwave energy is used to **ablate** tissue in a pattern that mimics the Maize procedure. A transcatheter version of the device is under development. AFx is a venture-funded company, and received 510(k) clearance for its FLEX 10 **Ablation** Probe accesso ry for the AFx Microwave Surgical **Ablation** system in February, including an indication for use in **ablation** of cardiac tissue.

CardiacAssist (Pittsburgh, Pennsylvania) exhibited its new temporary cardiac support system, the TandemHeart Percutaneous Ventricular Assist Device (pVAD), at the ACC conference. The...

...support up to 60% of the heart's pumping ability vs. only about 20% for existing IAPB systems. It provides continuous flow using a two- **catheter** system (one placed in the femoral artery, and a second in the left atrium), although there is still some dampened le vel of pulsatile flow...

...billion 20.7%

2004	$4.199 billion	12.7%
2005	$4.676 billion	11.4%
2006	$4.936 billion	5.6%

Includes coronary stents, PTCA **catheters** and guidewires, guide **c**atheters
, ancillary devices, wound closure devices and intravascular brachytherapy devices.

Source: The BBI Newsletter
Table 2

Cell Transplantion Technology in Cardiology

Company	Technology
Biocardia (South San Francisco, California)	Helical Infusion **Catheter** for cell delivery to heart; anchors to wall of vessel to avoid shear stresses and obtain precise targeting. Universal **Deflectable** Guide Catheter for controlled guidance of infusion **catheter** to injection site
Bioheart (Weston, Florida)	MyoCell for myocardial infarction; MyoCellCF for heart failure; MyoGene for both conditions; AlloCell uses allogeneic cells for both indications.
Cordis/Biosense (Miami Lakes, Florida)	MyoStar **catheter** combining NOGA guidance technology with 27G deployable injector needle
Diacrin (Charlestown, Massachusetts)	Autologous myocyte transplantation.
Indiana University Krannert Institute of Cardiology (Indianapolis,	Retrograde coronary venous cell infusion.

Indiana)

TransVascular (Menlo Park, California)	CrossPoint access **catheter** . Micro-Lume microinjection **catheter** for cell implantation via coronary venous injection.

Company	Development Status
Biocardia (South San Francisco, California)	Numerous cell types under study for delivery, including myocytes...

...profile,

	5F crossing profile. AngioGuard embolic protection device.
Guidant (Indianapolis, Indiana)	AccuLink stent; AccuNet Protection Device.
Invatec Srl (Rocadelle, Italy)	MO.MA double occlusion balloon **catheter** ; occludes both external and common carotid.
Medtronic (Minneapolis, Minnesota)	PercuSurge GuardWire occlusion balloon; self-expanding nitinol carotid stent with .070" (5F) crossing profile and **flexible** 10cm distal sheath.
Microvena (White Bear Lake, Minnesota)	TRAP NFS Neurovascular Filter; nitinol braided embolic protection device.
Rubicon Medical (Salt Lake City...	Guardian Occlusion Balloon

15/3,KWIC/5 (Item 5 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

09379558 Supplier Number: 82102429 (USE FORMAT 7 FOR FULLTEXT)
St. Jude Medical Announces Worldwide Market Launch of Livewire TC Bi-Directional Ablation Catheter .
Business Wire, p2463
Jan 24, 2002
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 393

St. Jude Medical Announces Worldwide Market Launch of Livewire TC Bi-Directional Ablation Catheter .
... PAUL, Minn.--(BUSINESS WIRE)--Jan. 24, 2002
St. Jude Medical, Inc. (NYSE:STJ) today announced the worldwide launch of its Livewire TC(TM) Bi-directional **catheter** , following U.S. Food and Drug Administration (FDA) pre-market and European CE Marking

approval.

The Livewire TC(TM) Bi-directional, designed for the radio frequency (RF) **ablation** of selected cardiac arrhythmias, is the latest addition to the Company's broad portfolio of electrophysiology (EP) **catheters** . Building on St. Jude Medical's successful Livewire TC(TM) **ablation** **catheter** platform, the four new Livewire(TM) models incorporate several unique design features.

The new bi-directional tip provides increased **flexibility** for the physician to reach difficult endocardial locations. Other features offer precise **catheter** tip control and improved tissue contact. The Livewire TC(TM) Bi-directional models can be used with most commonly available RF generators.

Commenting on the release of the Livewire TC(TM) Bi-directional **catheters** , Kalyanam Shivkumar, M.D., Ph.D., Associate Director of Cardiac Electrophysiology, University of Iowa, said, "Bi-directional **catheters** provide physicians with greater **flexibility** for mapping and positioning **ablation** **catheters** . The Livewire(TM) **steering** mechanism on the new bi-directional **ablation** **catheter** provides the same high level of control seen with previous versions of Livewire(TM) **catheters** ."

Cardiac electrophysiology is the study of the electrical system of the heart. **Ablation** **catheters** are used to map the course of electrical impulses in the heart and eliminate abnormal circuits. Radio frequency energy is used to deaden the cells...

...circuits, which conduct electrical impulses inappropriately, thereby causing rapid heartbeats or tachycardia.

"The addition of bi-directional models significantly expands our opportunity to penetrate the **ablation** **catheter** market segment," said David W. Adinolfi, President of St. Jude Medical's Daig Division. "We expect the new Livewire TC(TM) Bi-directional **ablation** **catheters** will be well received by the electrophysiology community, contributing to sustained momentum in our EP **catheter** business. St. Jude Medical is uniquely positioned to serve electrophysiologists' needs with its full array of cardiac rhythm management device and **catheter** -based products."

St. Jude Medical, Inc. (www.sjm.com) is dedicated to the design, manufacture and distribution of innovative medical devices of the highest quality...

?

15/3,KWIC/6 (Item 6 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08962113 Supplier Number: 77840435 (USE FORMAT 7 FOR FULLTEXT)
Cardima Reports Completion of Left-Sided Atrial Fibrillation Study; Expands European Study to Three Sites.
Business Wire, p0212
Sept 5, 2001
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 732

... Before Year End
Cardima(R), Inc. (NasdaqSC:CRDM) announced today the completion of a five-patient study with its REVELATION(TM) Helix(TM) radiofrequency (RF) **ablation** microcatheter for the treatment of atrial fibrillation (AF) originating in the pulmonary veins of the heart.
Cardima's initial European study was conducted at the...

...Prof. Dr. Berndt Luderitz, University of Bonn, Dr. Thorsten Lewalter and his team successfully treated all the patients suffering from AF using the REVELATION Helix **catheter** . To date, no complications have been reported. The procedures all required a trans-septal approach to access the left side of the heart, detailed mapping and RF delivery in the pulmonary veins. The REVELATION Helix combines the ability to both map and **ablate** with a unique helical-shaped **catheter** tip. The current technique requires at least two **catheters** in the left atrium, usually one **catheter** to map and a second **catheter** to **ablate** .
"The (Revelation Helix) **catheter** exhibited excellent handling characteristics and an adequate mixture of **flexibility** and stability for **maneuvering** in and around the pulmonary veins in the left atrium, allowing mapping of electrical potentials and safe **ablation** ," said Dr. Lewalter. "In all of our procedures, we found that the REVELATION Helix allowed circumferential mapping and `focal' **ablation** using a single left atrial **catheter** approach, thus reducing the risk of complications. All patients have left the hospital in stable sinus rhythm and started their six-month follow-up program...

...electrode microcatheter is the culmination of several years of developmental effort at Cardima, yielding first the Pathfinder mapping devices, then the REVELATION Tx therapeutic linear **ablation** system and now the REVELATION Helix, each incrementally evolving from the previous model. We are planning to seek regulatory approvals in Europe for the treatment...

...minimally invasive, single-use microcatheter for potentially curing AF. Cardima has a Phase III study underway in the U.S. for its Revelation Tx linear **ablation** microcatheter system, which is expected to be completed in the second half of 2001.
Except for the historical information contained herein, the matters discussed in...

15/3,KWIC/7 (Item 7 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08941893 Supplier Number: 77626527 (USE FORMAT 7 FOR FULLTEXT)
Best of AUA: 2001 Edition.

Urology Times, v29, n8, p1
August, 2001
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 7261

... non-nerve-sparing RP decreases the time to potency recovery. The procedure may reduce margin rates and improve erectile function in high-risk patients.

* Early **catheter** removal following RP is feasible and does not increase long-term complications. However, removal should only follow a day 4 cystogram that shows no or...

...procedure to be efficacious with minimal morbidity. Impotence is still a factor.

* Transrectal high-intensity focused ultrasound was 87.2% successful in prostate cancer tumor **ablation** .

* Patients with pre-radiation therapy PSA levels greater than 2.0 ng/mL with stable or rising PSA have a high incidence of later biochemical ...

...salvage cryotherapy after radiation therapy found that 35% of patients have viable benign glands after 30 to 36 months follow-up, pointing to incomplete tissue **ablation** . Salvage cryotherapy also has a low efficacy for patients with a Gleason (greater than or equal)8 and who have had a local prostate cancer...to what has been observed with other alpha blockers. The improvement occurs irrespective of prostate size.

* Long-term follow-up of patients undergoing transurethral needle **ablation** shows that about 25% require additional therapies.

* In men who have prostates greater than 100 mL, holmium laser resection is therapeutically equivalent to suprapubic prostatectomy but is associated with reduced operative time, bleeding, need for **catheterization** , and hospitalization.

* Thermotherapy with a water balloon device achieves results similar to other forms of heat treatment. Durability and applicability to the office setting remain...of patients in this study wished to continue on the therapy.

* Patients with a history of stress incontinence who do not leak during a Valsalva **maneuver** during urodynamic study should be retested with Valsalva with the **catheter** out. This will allow measurement of the Valsalva leak point pressure and may uncover SUI.

* Cuff downsizing is a simple and effective method of restoring...

...the first step when recurrent incontinence results from the condition.

* Recurrent infections, stent migration, and obstruction occurred more often than expected with insertion of a **flexible** self-expanding stent in men with urethral stricture disease and detrusor-sphincter dyssynergia. Short strictures of the pendulous urethra may be most amenable to this...

...did not reach the pretreatment level, suggesting a chronic modulatory effect.

Infection

Presented by Philip M. Hanno, MD, University of Pennsylvania, Philadelphia.

* A silver-coated **catheter** reduced bacteriurial colonization of the **catheter** endoluminal surface but made no difference in bacteriurial emergence.

* Use of a **catheter** coated with a hydrogel containing ciprofloxacin (Cipro)-loaded liposomes significantly reduced bacterial

colonization on the **catheter** over a 24-hour period.

* Neonatal circumcision can prevent urinary tract infections in neonates, although complications among circumcised patients can include hemorrhage, stenosis, and reparations...the VHL protein.

* The type of VHL gene mutation found in a patient may have a bearing on that patient's RCC severity.

* VHL-independent **pathways** to clear-cell RCC exist, characterized by partial-arm translocations.

* Gene GYLZ-RCC18 has high expression in RCC and no expression in normal tissue. Study...operated upon once tumors are (greater than) 3 cm.

* Bilateral RCC tumors will not necessarily be of the same stage or grade, suggesting that these **lesions** are not metastases.

* The width of a partial nephrectomy resection margin does not correlate with future RCC progression. A distance of 1 mm, however, is necessary to decrease risk of recurrence after nephron-sparing surgery. Radical nephrectomy increases the risk of developing chronic renal insufficiency compared with partial nephrectomy.

* Radiofrequency **ablation** of RCC is effective for **lesions** less than 3.5 cm in diameter, and can be done percutaneously and with conscious sedation.

* Laparoscopic renal cryoablation does not have an adverse effect...

...these bleeds are self-limiting. Angiographic embolization produces excellent results as well.

* The complication rate is significantly higher in grade 4 renal injuries involving renovascular **lesions** than those affecting the parenchyma only, suggesting a need to re-examine the current classification system.

* Early endoscopic realignment is an effective approach in patients ...

...resulting from balanitis xerotica obliterans have long-term success rates ranging from over 90% to less than 10%.

Impotence/sexual dysfunction

Presented by William D. **Steers** , MD, University of Virginia, Charlottesville.

* Research continues to identify and clarify important risk factors for impotence, including elevated triglycerides, low HDL levels, smoking, alcohol use...

...synthase activation was shown to be stimulated by shear stress and associated with regulation of the phosphatidylinositol-3-OH kinase and serine/threonine kinase Akt **pathway** in the rat penis, suggesting possible strategies for improving vascular perfusion in the penis. The activity of guanylate cyclase, responsible for producing cyclic guanosine monophosphate ...G. Gomella, MD, Jefferson Medical College and Kimmel Cancer Center, Philadelphia.

* Although nephroureterectomy is the standard treatment for upper-tract TCC, patients with high-grade **lesions** in a solitary kidney should be considered for conservative treatment, based on their short life expectancy and better quality of life.

* Laparoscopic ureteral surgical repairs...

...through the use of hand assistance and a variety of technologies is viable for small renal masses but requires extensive laparoscopic skill.

* Techniques for performing **ablative** partial laparoscopic nephrectomy are promising. However, caution should be taken because of residuals in urine specimens.

* Laparoscopic radical prostatectomy is technically demanding, has a very...

15/3,KWIC/8 (Item 8 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08877367 Supplier Number: 76712341 (USE FORMAT 7 FOR FULLTEXT)
Endoscopic ultrasonography in the management of pancreatic disease.
WALLACE, MICHAEL B.
The Journal of Critical Illness, v15, n2, p93
Feb, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Refereed; Professional
Word Count: 4504

... also important, even in patients who are not candidates for surgical therapy. Other indications for EUS include evaluation for chronic pancreatitis, the characterization of cystic **lesions** of the pancreas, and the **ablation** of pain using celiac plexus block or neurolysis. Recent investigations of EUS-guided fine-needle injection therapy may extend the role of this technique into...

...its safety.

INDICATIONS

Candidates for EUS of the pancreas include patients who require staging or tissue diagnosis of suspected pancreatic neoplasms, characterization of cystic pancreatic **lesions** , confirmation of the diagnosis of chronic pancreatitis, or celiac plexus block for pain control (Table 1). Recent advances in EUS technology have added several capabilities...

...for staging circumferential tumors of the gastrointestinal tract, such as esophageal and rectal carcinoma. Linear EUS is preferred for performing FNA because the entire needle **path** can be visualized in the ultrasound field.

By placing an ultrasound transducer into the stomach or duodenum, immediately adjacent to the pancreas, high-frequency (and...

...the "shadowing" effect of overlying bowel gas, which is a common problem in traditional abdominal ultrasonography. The high resolution of EUS images allows identification of **lesions** as small as 1 mm, (3) and it also permits visualization of their relationship to adjacent blood vessels, such as the portal vein and mesenteric...

...of needle placement. Finally, EUS makes it possible to perform FNA directly through the lumen of the gastrointestinal tract. This is advantageous because the needle **pathway** is often resected in the subsequent surgical procedure, so the potential for tumor spread along the needle **pathway** is minimized.

TECHNIQUE

In the examination of the pancreas and celiac axis, EUS takes advantage of the close proximity of the lumen of the stomach...

...ultrasonographic visualization of the pancreatic head, including the pancreatic and bile ducts.

Echoendoscopes used for EUS function much like standard endoscopes. They consist of a **flexible** fiberoptic light source, a video capture system, and accessory channels for air, water, and suction, as well as an array of biopsy and FNA devices...away as 5 cm.

CLINICAL UTILITY OF EUS

John Sims EIC 3700 308-4836

Evidence for the clinical utility of EUS in pancreatic disease supports five major applications: staging pancreatic adenocarcinoma, **ablating** pain in pancreatic cancer, delivering therapy directly to tumors, diagnosing cystic **lesions** of the pancreas, and evaluating neuroendocrine tumors.

Staging pancreatic adenocarcinoma

The staging of pancreatic and other tumors by means of EUS follows the tumor-node...

...of CT, laparoscopy, angiography, EUS, and surgical exploration in suitable candidates. Use of all four staging methods led to a resection rate of 86% for **lesions** with negative margins (R0). If EUS were not included in the preoperative staging, the resection rate for R0 **lesions** would have dropped to 57%.

The accuracy of EUS staging has been reevaluated in comparison with helical CT. Legmann et al (13) and Midwinter et...

...obtain tissue for histologic diagnosis is an advantage EUS-guided FNA has over less invasive staging methods. Tissue examination may distinguish inflammatory from malignant pancreatic **lesions** and is necessary for many chemotherapeutic regimens and research protocols. Standard percutaneous methods of FNA have an overall accuracy of approximately 80%, and there is ...anterior to the aorta at the level of the celiac artery. A recent advance in EUS technology is the ability to perform nerve blocks or **ablation** of the celiac plexus for control of pain from pancreatic cancer or chronic pancreatitis.

EUS-directed celiac neurolysis is simple and safe to perform in...

...tool, then as a means of minimally invasive tissue sampling, and lastly as a method to couple detection with treatment of pancreatic tumors.

Evaluating cystic **lesions**

Cystic **lesions** of the pancreas present a difficult clinical dilemma. Often detected serendipitously, they comprise completely benign, potentially malignant, and frankly malignant **lesions** . The only definitive management is surgical resection, and pancreatoduodenectomy is often required. The principal quandary is how to accurately distinguish **lesions** with no malignant potential, such as pseudocysts and serous cystadenomas, from premalignant and malignant **lesions** , such as mucinous cystadenomas, cystadenocarcinomas, and intrapapillary mucinous tumors. A further surgical question is deciding whether to perform extensive or limited resection. Because of its...

...internal cystogastrostomy or cystoduodenostomy tube placement, EUS has become an important tool in cyst management.

Koito and colleagues (21) used EUS to classify 52 cystic **lesions** according to wall and septal characteristics. All neoplastic **lesions** were found to have thick walls or thick septae, and all non-neoplastic **lesions** were found to have thin walls and thin septae. Thus, these characteristics were 100% sensitive and 100% specific.

Sugiyama and associates (22) were also able to reliably distinguish mucinous cystic **lesions** from intrapapillary mucinous tumors using a combination of EUS, endoscopic retrograde cholangiopancreatography, magnetic resonance cholangiopancreatography, and CT. The presence of septations and mural nodules correlated...
...invasion and lymph node metastases, and EUS was the only imaging method able to detect both of these features accurately. These authors suggest that mucinous **lesions** with septations or mural nodules seen by EUS should be treated with tumor excision and wide lymph node dissection, whereas intrapapillary mucinous tumors smaller than...

...treated with local excision (and may not require lymph node dissection).

There is extensive literature on cyst fluid analysis to distinguish neoplastic and non-neoplastic **lesions** . The use of EUS-guided cyst fluid aspiration is being evaluated at Massachusetts General Hospital. (7) In results from 20 patients who underwent EUS and...

...way.

Evaluating neuroendocrine tumors

Since the original description of gastrinomas in 1955 by Zollinger and Ellison, numerous imaging modalities have been evaluated for localizing these **lesions** in preparation for surgical resection. CT, MRI, and conventional ultrasonography detect tumors in fewer than 50% of patients. (23) Somatostatin receptor scintigraphy is a promising...experience. Gut. 1999;44:720-726.

(7.) Mallery S, Quirk D, Lewandrowski K, et al. EUS-guided FNA with cyst fluid analysis in pancreatic cystic **lesions** (abstract). Endoscopy. 1998;30(suppl):A180.

(8.) Savides TJ, Gress FG, Zaidi SA, et al. Detection of embryologic ventral pancreatic parenchyma with endoscopic ultrasound. Gastrointest...

...J Surg. 1991;161:26-29.

(17.) Hunerbein M, Ghadimi BM, Haensch W, Schlag PM. Transendoscopic ultrasound of esophageal and gastric cancer using miniaturized ultrasound **catheter** probes. Gastrointest Endosc. 1998;48:371-375.

(18.) Grimm H, Hamper K, Binmoeller KF, Soehendra N. Enlarged lymph nodes: malignant or not? Endoscopy. 1992;24...

...151-158.

Table 1 -- Indications for endoscopic ultrasonography of the pancreas

Staging of suspected pancreatic neoplasms

Tissue diagnosis of suspected pancreatic neoplasms

Characterization of cystic **lesions** of the pancreas

Diagnosis of chronic pancreatitis

Celiac plexus block/neurolysis for pain control in chronic pancreatitis or carcinoma

Table 2 -- Advantages of endoscopic ultrasonography of the pancreas and offers the capability to perform fine-needle aspiration (FNA), obtain biopsy specimens, and inject diagnostic and therapeutic materials into pancreatic **lesions** and related sites. It is indicated for staging and tissue diagnosis of pancreatic cancer, diagnosis of suspected pancreatic neoplasms and cystic **lesions** , diagnostic confirmation of chronic pancreatitis, and celiac plexus block or neurolysis for pain control in pancreatic cancer or chronic pancreatitis.

2 EUS allows identification of **lesions** 2 to 3 mm in diameter and anatomic landmarks as small as 1 mm. The relationship between tumor and adjacent blood vessels can be made...

...3 Because EUS-guided FNA is performed directly through the lumen of the gastrointestinal tract at a site as close as possible to the pancreatic **lesion** , the potential for tumor seeding along the needle **pathway** is minimized. Because the site of needle penetration is small enough to be resected in the subsequent surgical procedure, the adverse consequences of seeding are...

...a thorough diagnostic protocol enhances, the resection rate for pancreatic malignancies with negative margins. In addition, the sensitivity and specificity of EUS to classify cystic **lesions** of the pancreas as benign or malignant approach 100%.

6 EUS-directed celiac blockade yields significantly better pain

control than CT-guided blockade.
7 Detection...

15/3,KWIC/9 (Item 9 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08597265 Supplier Number: 66680196 (USE FORMAT 7 FOR FULLTEXT)
More than 500 reasons to visit AAO exhibit hall.
Ophthalmology Times, v25, n21, p57
Nov 1, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Refereed; Professional
Word Count: 3548

... attachments.

Archives of Ophthalmology
Booth 5515

Argus Ophthalmic Instruments
Booth 2130

Arno International Inc.
Booth 210

Asclepion-Meditec AG
Booth 3406
Asclepion-Meditec offers customized **ablation** with its all-in-one-workstation. In conjunction with the MEL 70 G-Scan excimer laser, the company incorporates the new high-resolution Wavefront Aberrations System WASCA (Wavefront Aberration Supported Cornea **Ablation**), a fully functional topography guided technique TOSCA (Topography-Supported Customized **Ablation**), and ...ATRION Medical Products Inc.
Booth 2108,2110
ATRION Medical Products Inc. manufacturers and distributes surgical devices for lacrimal surgery including the LacriCATH lacrimal duct balloon **catheter** for treatment of nasolacrimal duct obstructions and the STENTube, a large-diameter silicone intubation tube for balloon **catheter** DCR/revisional DCR.

Aurora Ministries
Booth 2116

Autonomous Technologies Inc.
See Alcon Summit Autonomous

B

B. Graczyk Inc.
Booth 5418
B. Graczyk Inc. offers its...lint-free spears, sponges, shields, and drains; new cannulas, new flap protector, bilateral and incision drapes. A new line of vitreoretinal micro-tip instruments and **flexible** tip subretinal fluid cannulas also

will be introduced. For oculoplastic surgeons, lacrimal intubation and DCR sets and tubing will be available. A variety of surgical...

...Innovative Imaging Inc.
Booth 4420,4422
The I3SYSTEM-ABD ("I-cubed") is a high-resolution digital A/B-scan unit featuring an analog oscilloscope (static **deflection**) display. This versatile A/B-scan may include 4 ultrasound modes: 10 MHz globe and orbit B-scan; 20 MHz Hi-Res anterior segment B...will showcase products for the future of refractive laser technology. LaserSight will unveil the proposed international CustomEyes software and the ASTRAMax diagnostic unit for custom **ablation** . Its research "wet lab" will demonstrate the upcoming technology capabilities of the CustomEyes program. LaserSight will be asking surgeons for their comments and feedback on CustomEyes so that it can better meet their needs. This software tool will take diagnostic information from the ASTRAMax unit and customize an **ablation** pattern for the LSX. The "wet lab" will provide surgeons with a hands-on opportunity to interact and influence the development of CustomEyes.

Latham & Phillips...

15/3,KWIC/10 (Item 10 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08482308 Supplier Number: 72669029 (USE FORMAT 7 FOR FULLTEXT)
FDA Allows Modular PMA Filing for the Revelation Tx System; Cardima Files First Module of Premarket Approval Application.
Business Wire, p0011
April 3, 2001
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 754

... the Revelation Tx system.
Featuring patented, advanced technology, the Revelation Tx microcatheter system is designed to provide easy access to arrhythmia-causing tissue, create linear **lesions** or restricted **pathways** , and restore normal sinus rhythm using radio frequency (RF) energy. The Revelation Tx system incorporates multiple coil electrodes in a **catheter** designed to receive electrical signals for mapping and to emit RF energy for **ablating** . The microcatheters feature variable stiffness and a highly **flexible** distal tip to allow enhanced access and contact to the cardiac tissue. The minimally invasive treatment is performed in a hospital setting and takes an...
...use, microcatheter-based product for potentially curing AF, and is believed by the company to be two to three years ahead of other development-stage **ablation** therapies in the approval process. The company will need to raise additional capital to continue to develop and market its products. Additional information is available...

John Sims EIC 3700 308-4836

16/3,KWIC/9 (Item 9 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08255717 Supplier Number: 69649856 (USE FORMAT 7 FOR FULLTEXT)
Cardima Restructuring Focuses Company On Atrial Fibrillation Program.
Business Wire, p2010
Jan 29, 2001
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 827

... product for curing AF. Featuring revolutionary and patented technology, the Revelation Tx system is designed to provide easy access to arrhythmia-causing tissue, creating linear **lesions** or restricted **pathways** , and restoring normal sinus rhythm using radio frequency (RF) energy. The Revelation Tx system incorporates multiple coil electrodes in a **catheter** designed to receive electrical signals for mapping and to emit RF energy for **ablating** . The microcatheters feature variable stiffness and a highly **flexible** distal tip to allow enhanced access and contact to the cardiac tissue.

In Phase I and II studies involving 53 patients treated with the Revelation...
20010129

16/3,KWIC/10 (Item 10 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08016887 Supplier Number: 66658279 (USE FORMAT 7 FOR FULLTEXT)
St. Jude Medical Expands Livewire(TM) Duo-Decapolar Steerable Catheter **Product Line for Diagnosis and Treatment of Supraventricular Tachycardias.**
PR Newswire, pNA
Nov 7, 2000
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 487

St. Jude Medical Expands Livewire(TM) Duo-Decapolar Steerable Catheter **Product Line for Diagnosis and Treatment of Supraventricular0 Tachycardias.**

St. Jude Medical Inc. (NYSE: STJ) today announced the release of a new electrophysiology **catheter** to assist clinicians in the diagnosis and treatment of supraventricular tachycardias. The Livewire(TM) Duo-Decapolar **catheter** , with special electrode spacing, allows physicians to simultaneously map in both the right atrium and coronary sinus with a single **steerable catheter** . This new model in the St. Jude Medical Livewire(TM) product line can reduce the number of **catheters** used during an electrophysiology procedure as well as the number of vascular access sites in the patient. The Livewire(TM) product line from St. Jude Medical includes mapping and **ablation catheters** for the treatment of various arrhythmias. The Company offers the most comprehensive range of diagnostic and therapeutic **catheter** -based EP tools in the industry.

(PHOTO: http://www.newscom.com/cgi-bin/prnh/20000101/JUDELOGO)

Electrophysiology is the study of electrical phenomena related to the heart. **Ablation catheters** are used by electrophysiologists to map or locate the position of an abnormality in the heart. The same **catheter** is then used to eliminate the abnormality through the use of RF energy to

ablate the cells that are conducting electricity inappropriately in the heart and causing a rapid heart beat or tachycardia. A Duo-Decapolar EP **catheter** incorporates twenty electrodes, providing the clinician with maximum **flexibility** for diagnostic purposes.

Commenting on the release of the new Livewire(TM) Duo-Decapolar **catheter** , Michael J. Coyle, President of the St. Jude Medical Daig Division said, "Our Livewire Duo-Decapolar **catheters** have been used extensively by physicians globally. This new Duo-Decapolar model builds on a proven technology platform and benefits both the physician and the patient by reducing the number of **catheters** and vascular access sites needed to complete the electrophysiology procedure. This is particularly significant in complex electrophysiology procedures such as atrial fibrillation where the total number of **catheters** can exceed five or more making it more challenging to position them all with a limited number of vascular access sites."

Coyle added, "This new **catheter** product continues to expand the range of palliative and curative technologies offered by the integrated St. Jude Medical sales organizations to the electrophysiology community. As mentioned in our recent earnings teleconference, nobody does full CRM like St. Jude Medical. We will continue to expand St. Jude Medical's **catheter** technology offering and expect this comprehensive approach to strengthen our market position across the board."

Any statements made regarding anticipated revenues, earnings, future regulatory approvals...

20001107

16/3,KWIC/11 (Item 11 from file: 16)

07904754 Supplier Number: 66035843 (USE FORMAT 7 FOR FULLTEXT)

Cold heart, hot idea.

CALLEJA, DAWN

Canadian Business, v73, n17, p45
Sept 18, 2000
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 2126

... late 1980s, tachyarrhythmia sufferers either had to take drugs for the rest of their lives or have open-heart surgery. Then cardiologists discovered how to **ablate** , or destroy, the tissue causing the short circuit using radio frequency (RF). Doctors feed a long **catheter** into the blood vessel system through the groin and **steer** it into the affected heart chamber. At the tip of the **catheter** is a small piece of metal that heats to temperatures of up to 60(degrees)C, in order to burn away the defective tissue.

Sounds frightening, but it's a relatively simple procedure--patients are under local anesthetic and usually go home the same day. Doctors perform 800,000 RF **ablations** annually in the US alone. But with a hot chunk of metal snaking around inside the heart, there are bound to be risks. "Although RF...

...Ont. "RF can be very unstable."

Klein, who performs a couple of RF procedures every day, says it can be extremely difficult to hold the **flexible catheter** steady. And once the tip hums into the tissue, the damage is irreversible. So if a doctor hits the wrong spot, too bad. There's...

...Airport hang seven US patents, engraved on brushed steel and mounted on wooden plaques. The various patents are for such futuristic-sounding things as "cryoablation **cat**heter and method for performing cryoablation" and "cryogenic mapping," and include complicated diagrams that look like something you'd find in an alien spacecraft.

But those patents have made Arless a very happy man--and could do the same for the thousands of tachyarrhythmia patients facing RF **ablation** . The patents effectively give CryoCath the exclusive right to sell freezing treatments--rather than burning ones--delivered through **flexible catheters** in the blood vessel system. That means CryoCath could develop cryotherapies to treat everything from cancerous tumors to gynecological problems to brain aneurysms--with no...

...this would have to come to us for a licence--which, of course, we wouldn't give them."

CryoCath's first product, the Freezor Cryoahlation **Catheter** for tachyarrhythmia treatment, has already been approved in Europe and will hit the market there next year. But the company still has to navigate the... Arless. CryoCath quickly got the attention of venture funds like Crescendo Ventures, whose general partner, Jeff Tollefson, likes to call Minneapolis "the home of the **catheter** :' He adds: "We haven't made many investments in Canada--CryoCath was our first. It's very exciting to watch."

But being located in Montreal...

...about any other tech company's. Twentysomethings in faded jeans and T-shirts hunch over long white counters, sketching designs or inspecting long, blue prototype **catheters** brought from the lab down the hall.

It's there that white-coated technicians in caps and booties assemble Freezors under powerful microscopes and magnifying...

...a hair that will carry a refrigerant to the gold-plated tip; a thermal couple that senses temperature; a handle that allows the physician to **steer** the **catheter** through the veins and into the heart; and three tiny electrocardiogram (ECG) rings close to the tip that monitor the heart's rhythm. Building the devices is a painstaking process that takes up to six hours. Once it's finished, each **catheter** is tested in a stainless steel pot of 37(degrees)C water-the temperature of blood-to make sure it can reach temperatures of -70...

...first applications as an intern at Duke University. "At the time, I thought, 'Wouldn't it be nice if we could do this through a **catheter** ?"' he says. But it simply wasn't possible to put a sophisticated refrigeration system inside a 2.2-millimetre tube. "You have to freeze something...

...has performed several cryotherapy procedures during clinical trials at LHSC. First of all, a cardiologist can gradually reduce the temperature at the tip of the **catheter** , stunning the suspect tissue; the ECO rings let the doctor know whether he's hit the right spot. If not, the tissue simply thaws out...not trying to prove that cryo is safe and effective. We're trying to prove that we can deliver it safely and effectively through a **catheter** ." And in the process, he hopes to deliver heart-stopping returns to patient investors.

20000918

16/3,KWIC/12 (Item 12 from file: 16)

07464012 Supplier Number: 62744781 (USE FORMAT 7 FOR FULLTEXT)

John Sims EIC 3700 308-4836

CARDIMA ANNOUNCES EUROPEAN MARKET LAUNCH OF REVELATION T-FLEX ABLATION **MICROCATHETER.**
PR Newswire, p5297
June 15, 2000
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 401

CARDIMA ANNOUNCES EUROPEAN MARKET LAUNCH OF REVELATION T-FLEX ABLATION **MICROCATHETER.**

Fremont, California -

Cardima(R), Inc. (Nasdaq: CRDM) today announced it had launched in Europe its Revelation(TM) T-Flex **deflectable** linear **ablation** microcatheter to treat Atrial Fibrillation (AF). The Revelation T-Flex is the latest version of the Revelation family of linear **ablation catheters** currently used in over 35 centers in Europe and in nine clinical trial centers in the U.S. The Revelation T-Flex is the first commercially available, **deflectable** linear **ablation** microcatheter. Each of the microcatheters in the Revelation family have become progressively more sophisticated and provide better access to regions of the heart, making linear **ablations** easier to perform and providing excellent clinical outcomes.

"The launch of the Revelation T-Flex gives European physicians a sophisticated tool enabling safer AF **ablations** by increasing **maneuverability** with the goal of reduced procedure times," said Phil Radlick, Ph.D., President and Chief Executive Officer of Cardima. Dr. Radlick continued, "This new **catheter** combines the best features of the Revelation and Revelation Tx **catheters** : small size and **flexibility** with **steerability** and temperature-sensing for easy and quick deployment to create long thin, linear scars."

Cardima, Inc. designs, develops, manufactures and markets minimally invasive, single-use...
20000615

16/3,KWIC/13 (Item 13 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07447641 Supplier Number: 62601744 (USE FORMAT 7 FOR FULLTEXT)
Ultrasound catheter **looks inside heart.(Brief Article)**
DeMeis, Rick
Design News, v55, n11, p81
June 5, 2000
Language: English Record Type: Fulltext
Article Type: Brief Article
Document Type: Magazine/Journal; Refereed; Academic Trade
Word Count: 1346

Ultrasound catheter **looks inside heart.(Brief Article)**
... fails then an implanted pacemaker-type device can deliver an appropriate electric current to restore a normal rhythm. A third option is to use a **catheter** to destroy, via electrical energy, the tissue within the heart causing the arrhythmia, **ablating** away the pathway of the abnormal signals. But in order to work within the heart, surgeons need to determine precisely the location of the offending tissue, as well as the position of any **catheters** inserted as part of the detection or **ablation** process.

By combining proven ultrasound and **catheterization** technologies, engineers at Acuson Corporation (Mountain View, CA) have developed an

intracardiac ultrasound **catheter** , the AcuNava(cent), that allows surgeons to look at structures within the heart with greater clarity than before. Thus they can more precisely determine any affected area and locate **catheters** for treatment.

Sound technology. Previously, cardiologists used ultrasound externally to ex- amine heart function and structure in general. Michael Curley, Acuson's program director for AcuNav, says that current **catheter** -based ultrasound is not ideal to image **ablation** surgery. These are based on smaller, single-element ultrasound transducers used in probes passed down the esophagus to image the heart. They emit sound radially...

...notes.

Development of the AcuNav began as a part-time program in 1991 when doctors from the Mayo Clinic approached the company to produce a **catheter** -based device to clearly image minimally invasive **catheter** procedures and much of the surrounding tissue of the heart. A full development since 1996, the FDA granted Acuson clearance to market the device last December.

The small, 64-element piezoelectric transducer used in the AcuNav emits a wavefront sideways. Phased-array beam **steering** and signal processing, similar to radar systems, produce a sharp image of the heart volume. Curley notes that, "Usually a plastic lens is used to...
...transducer to produce a beam in a tight plane. But with a small transducer, that would cause the focus to be too close to the **catheter** " and the beam would fan out farther away. "We eliminated the need to focus with a proprietary material that keeps the sound in a narrow...

...format results in a more intuitive visuali-zation as opposed to a radial format, especially when viewing other devices that are inserted parallel to the **catheter** during various procedures, says Curley.

The AcuNav features the company's Coherent Image Formation architecture, which uses both ultrasound phase and amplitude data to maximize...

...development team wanted to make sure all the ridges and folds of tissue in the heart wall could be resolved adequately so that, say, any **ablation** probe heating in "valley" areas will be sure to remove problematic tissue. The device can also operate at select frequencies for spectral time histories of blood flow (4-5 MHz) or color Doppler flow maps (4, 5, 6, and 7 MHz).

Know your users. The **catheter** is a 10 "French" (3.3-mm diameter) device, 90 cm (35.4 inches) long. Echocardiologists insert the AcuNav into the body via either the...
...right side chambers of the heart. Curley says that in early development, the engineers built a 15 French (5-mm) device with a bi-directional **steerable** tip. "The physicians from Mayo Clinic were de- manding," he notes, "They wanted 10 French, four directions of mobility, and the broadband transducers. They set a high bar to enter the market."

Materials were vital in fashioning a useable **catheter** mechanism. The simple operating mechanism requires only a few movements of two wheels running to pairs of control wires to **maneuver** the **catheter** tip in four directions. The doctor then can lock-in any position via a locking ring adjacent to the wheels. The non-homogeneous bending stiffness of the plastic tip also allows up to 160A(degree sign)of **steering** in each of the four orthogonal directions.

Curley adds, " **Steering** is a subtle thing. For example, we thought we had it nailed down with originally reducing friction of the control lines used for **steering** by laminating the lines with a lubricating layer. This design worked well, but in rare instances, we found the friction increased somewhat. Although performance was...

...the small holes (it passed through) causing binding." The solution turned out to be a lubricated, braided wire.

In the event of voltage surges, the **catheter** must also be safe electrically for use within the body. Curley highlights that each unit is tested for breakdown voltage up to 3,000V. With little material volume available to "bulk up" the **catheter** for such protection, he says plastics with high dielectric strength were vital to the design.

The design team also elected to make the portions of the **catheter** that enter the body disposable, removing long-term issues of performance after repeated sterilizations and liability concerns. This meant driving down the cost as low as possible. Curley notes one portion of the cost cutting involved eliminating a higher cost conventional electrical connector between the **catheter** and its mounting handle. Substituting a pinless connector, a **flexible** circuit in the end of the **catheter** is clamped by contacts in the handle when the **catheter** is locked into place.

In designing the AcuNav, Curley notes the importance of engineering software tools. "Much of the design work was done with Pro...

...Engineering challenges

Concentration of ultrasound energyaSolved by flat-wavefront generating, side-firing transducer

Clear imagesaMade possible by proprietary acoustic modeling for signal processing

Cut disposable **catheter** costaDeveloped pinless, **flexible** -circuit connection

Accurate **catheter** positioningaUse of simple, four-way **steering** mechanism

<READERSERVICE>For more information Go to www.designnews.com/info or circle the number on the Reader Service Card: Transducers from Acuson: Circle 545...

20000605

16/3,KWIC/14 (Item 14 from file: 16)

07377620 Supplier Number: 59967018 (USE FORMAT 7 FOR FULLTEXT)

World of ophthalmology converges upon New Orleans.

Ophthalmology Times, v23, n21, p40
Nov 1, 1998
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 12826

... barrier for healing.

AESCULAP-MEDITEC GmbH

Booth 3334

Aesculap-Meditec offers an Er:YAG laser system for phacoemulsification and a laser system for gentle skin **ablation** .

Akorn Inc.

Booths 4316,4406

Akorn's pharmaceutical products include diagnostic, therapeutic, and OTC medications. Surgical products include titanium instruments and diamond knives, stainless steel...

...footswitch position 3. Other products available include the ACCURUS surgical system for vitreoretinal procedures, PROSHIELD Collagen Corneal Shields, MONARCH IOL Delivery System, and the KELMAN **Steerable** I/A System (investigational device).

John Sims EIC 3700 308-4836

Alfa Medical
Booth 726
These sterilizer specialists offer a rapid-heat sterilizer with 6-minute cycles without dolling or corrosion...controlling the flow rate.
ATRION Medical Products Inc.
Booths 722,724
ATRION features the new In-office Balloon Dacryoplasty procedure with the LacriCATH lacrimal duct **catheter** . Adult patients with tear duct obstructions suffering with epiphora now have an alternative to a DCR procedure and can have the convenience of their physicians...from cutting, peeling, or manipulation of intraocular membranes. An assistant is not required. The probe is 20 gauge and is available with three pick configurations. **Flexible** Iris Retractors are designed to meet hospital and surgicenter needs. The longer retractors facilitate easier placement and feature easy-to-open packaging.
Eschenbach
Booths 3034...Internet-based program is accessible 24 hours/day, 7 days/week, making the application and payment process fast and easy. Hillside Finance International offers innovative, **flexible** project financing options providing cost-effective means of acquiring new technology, buying or renovating medically related real estate, and purchasing additional medical practices.
The Hoehne...New portable slit lamp adapters with micromanipulators are now available on Haag-Streit, Zeiss, and similar slit lamps. A self-centering micromanipulator adds precision beam- **steering** capabilities with a convenient joystick location. The OcuLight SL/SLx Infrared (810 nm) photocoagulator offers advanced semiconductor technology and serves as a single laser source...

...Booths 2160,2162
Kera Technology Inc.
Booths 1360,1362
Kera Technology presents a refractive system that uses simultaneous, multiple, random-projection laser beams for tissue **ablation** .
KeraVision Inc.
Booths 3218,3220,3222
KeraVision says it is pioneering a potential new category of vision correction--using precision-engineered, feather-light, clear polymer... surgical and pharmaceutical eye health care.
PHI Enterprises Inc.
Booth 3066
PhotoMed International
Booth 123
Photon Data Inc.
Booth 3936
Photon Data demonstrates a compact, **flexible** scanning laser using "ceramic" technology for all PRK and LASIK uses. PDI's unique software offers the advantages of unlimited zone size and shapes with...4200
The Vit Commander System posterior/ anterior system allows the vitreoretinal surgeon to perform vitrectomy procedures more efficiently and effectively, while offering enhanced control and **flexibility** . The Phaco Commander anterior/posterior system offers the functions and features required for both cataract surgery and posterior vitrectomy procedures. Features include: load compensation for...Booth 919
Surgidev Corp.
Booth 1245
Surgidev Corp. specializes in the manufacture, design, and promotion of all PMMA and blue-haptic IOLs. Other products include **flexible** iris retractors.
Surgin Inc.
Booths 1247,1249

John Sims EIC 3700 308-4836

Surgin Inc. offers small-incision and high-efficiency curved phaco tips for all AMO, OPS, and Storz (Bausch...
19981101

16/3,KWIC/15 (Item 15 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

07029385 Supplier Number: 59362987 (USE FORMAT 7 FOR FULLTEXT)
Reprocessing & Reuse Of Single-Use Devices Risk Categorization Scheme.
Biomedical Market Newsletter, v9, n12, p21
Dec 31, 1999
Language: English Record Type: Fulltext
Document Type: Newsletter; Refereed; Trade
Word Count: 2030

... to evaluate the possibility of performance deterioration in Flow Chart 2 is whether degredation can be established through visualization. Applying this criteria to an electrophysiology **catheter** would result in the conclusion that the performance can not be evaluated with visual inspection alone.

Therefore, the **catheter** would get a "2" in response to that question on the flow chart, and would be categorized as a high risk due to the risk...For example, if the SUD contains a battery, the battery may no longer be effective after a single use. Also, if the SUD contains a **steering** wire, the strength of the wire may gradually decrease with use.

2. If CDRH recognized performance standards, 2 Spaulding, E.H. 1972. Chemical disinfection and...
...can be used to assess the overall risk of using a reprocessed SUD are discussed below.

Example 1: An Anesthesia Breathing Circuit device consists of **flexible** or rigid tubing that is used to convey gases to the patient. It is indirect-patient contacting and is usually constructed of PVC. It may...

...in this case. The total score for an anesthesia breathing circuit is 0. Therefore, this SUD may be considered a low risk.

Example 2: Cardiac **Ablation Catheters** consist of a **catheter** with approximately four electrodes mounted onto the distal end of the **catheter** to deliver electrical energy to the patient. They are blood contacting and always labeled for single use. This device is a class III device according...

...is not considered a noncritical risk of infection. This is a critical device.

2. The electrodes that are mounted on the distal end of the **catheter** may make it difficult to clean or sterilize the device. Therefore, the numerical value associated with the risk of infection is 2. The device would...

...the RCS regardless of the score associated with the risk of performance degradation.

Flow Chart 2: Evaluating the Risk of Performance Change

1. The cardiac **ablation catheter** does contain materials, coatings or components that may be damaged or altered by a single use in such a way that the performance of the...
19991231

John Sims EIC 3700 308-4836

16/3,KWIC/16 (Item 16 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

06820716 Supplier Number: 57743542 (USE FORMAT 7 FOR FULLTEXT)
Cardima Receives Approval to Sell Revelation T-Flex Ablation **Microcatheter in Europe; Revelation T-Flex Is Smallest Approved** Deflectable · Ablation Catheter .
Business Wire, p0032
Nov 22, 1999
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 494

Cardima Receives Approval to Sell Revelation T-Flex Ablation **Microcatheter in Europe; Revelation T-Flex Is Smallest Approved** Deflectable Ablation Catheter .

Cardima(R), Inc. (Nasdaq:CRDM) today announced it had received CE mark approval for its Revelation T-Flex **deflectable ablation** microcatheter to treat atrial fibrillation (AF) in Europe. The most sophisticated of the Revelation microcatheter family, the Revelation T-Flex incorporates eight coiled electrodes, eight tissue temperature-sensing elements and adds the ability to **deflect** (**steer**) the **catheter** to the desired location. Cardima believes these features are important because the coiled electrodes allow a high degree of **flexibility** to conform to the heart's wall to create a thin linear lesion, the temperature sensing elements are in direct contact with tissue to optimize accuracy of temperature monitoring and the **deflectability** allows the physician to place the **catheter** precisely for effective treatment.

"The approval of the Revelation T-Flex in Europe rounds out our product portfolio as the third product approved to treat atrial fibrillation in Europe in less than a year," said Phil Radlick, President and Chief Executive Officer of Cardima. (The Revelation and Revelation Tx **ablation** microcatheters were approved in Europe in August and December 1998, respectively.) Dr. Radlick continued, "We believe the Revelation T-Flex, Revelation Tx and Revelation comprise the first and only family of products available to European physicians to treat AF. We believe the small size and **steerability** of the Revelation T-Flex is a significant competitive advantage over existing **ablation catheters** due to its ability to be quickly **steered** into place and create long, thin, linear lesions. Cardima continues to provide physicians with state of the art tools to enable the minimally invasive treatment...
19991122

16/3,KWIC/17 (Item 17 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

06814621 Supplier Number: 57618200 (USE FORMAT 7 FOR FULLTEXT)
CryoCath Technologies Expands Study in Catheter **Cryoablation of Cardiac Arrhythmia Following FDA Provisional Approval.**
PR Newswire, p7696
Nov 17, 1999
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 626

(USE FORMAT 7 FOR FULLTEXT)
CryoCath Technologies Expands Study in Catheter **Cryoablation of Cardiac**

Arrhythmia Following FDA Provisional Approval.
TEXT:
KIRKLAND, Quebec, Canada, Nov. 17 /CNW/ - CryoCath Technologies Inc., the world leader in **catheter** cryoablation systems, today announced that nine leading medical centers across the U.S. and Canada will participate in a multi-center study designed to evaluate the safety and efficacy of the Freezor(TM) cryocatheter **ablation** system for the treatment of Supraventricular Tachycardia (SVT). It will be the first U.S. study using cryoenergy **catheters** as opposed to radiofrequency (RF) energy **catheters** to **ablate** cardiac arrhythmias, and follows two Canadian human feasibility studies for SVT during which more than 35 patients were treated with CryoCath's Freezor(TM) cryocatheter...
... Jean-Pierre Desmarais, Vice-President, Scientific Affairs for CryoCath Technologies, to thoroughly review the FDA-approved protocol and to finalize study activities.

The Freezor cryocatheter **ablation** system is comprised of a 9Fr **flexible** and **steerable** **ablation** **catheter** and a sophisticated microprocessor-controlled electromechanical console that enables and controls the ability of the percutaneous **catheter** to generate freeze temperatures from -30C to -60C in a beating heart.

``We are excited about the prospects of CryoCath's **catheter** cryoablation technology to treat arrhythmias,'' said Dr. Peter Friedman of the Brigham & Women's Hospital in Boston, who is the inventor of the technology, and Dr. Marc Dubuc of the Montreal Heart Institute, both co-Principal Investigators. ``The interest for a better energy source to **ablate** arrhythmias is evidenced by the list of esteemed clinical investigators in leading electrophysiology (EP) centers across North America that will be part of this study...

...start multi-center studies in the United Syayes is a crucial milestone for CryoCath in its mission of continuing world leadership in the field of **catheter** cryoablation,'' said Mr. Steven G Arless, President & CEO. ``As we continue to remain on track to commercialize our electrophysiology (EP) products in Europe and Canada...
...Institute, Montreal, Quebec
Dr. A. Skanes, Dr. G. Klein - London Health Science Center, London, Ontario
CryoCath Products:

CryoCath's initial product is a cardiac cryoablation **catheter** system for use in electrophysiology, an area of cardiology specializing in the treatment of heart arrhythmias (irregular heartbeats). The system, which consists of a disposable cryoablation **catheter** and a cryoablation control console, was specifically designed to treat tachyarrhythmias. There are currently no ideal **catheter** **ablation** solutions to treat up to 75% of all arrhythmias worldwide. CryoCath's system has the potential to treat nearly every known arrhythmia, including Atrial Fibrillation...

...established in 1995, employs over 55 highly skilled staff that bring extensive research and development and scientific experiences together to address the unique challenges in **catheter** -based cryoablation technology. The Company's R & D group has internally developed all **catheter** and console devices as well as established an in-house **catheter** assembly team. CryoCath recently opened a 20,000 square foot **catheter** systems development and pilot production facility in Kirkland, Quebec, Canada.
SOURCE CryoCath Technologies Inc.
19991117

16/3,KWIC/18 (Item 18 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

John Sims EIC 3700 308-4836

05593747 Supplier Number: 48466736 (USE FORMAT 7 FOR FULLTEXT)
St. Jude Medical Expands Electrophysiology Products
PR Newswire, p0504MNM021
May 4, 1998
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 733

(USE FORMAT 7 FOR FULLTEXT)
TEXT:
Daig Duo-Decapolar Livewire **Catheter**
Designed for Mapping Atrial Arrhythmias

ST. PAUL, Minn., May 4 /PRNewswire/ -- St. Jude Medical, Inc. (NYSE: STJ) announced today that Daig, its specialty **catheter** business, has expanded its Livewire(TM) Duo-Decapolar diagnostic **catheter** product line. The Duo- Decapolar **catheter** is a 20 electrode **steerable catheter** designed for mapping atrial arrhythmias and was first introduced by Daig in late 1997. Given strong demand by clinicians, Daig has expanded the models of the Livewire(TM) Duo-Decapolar **catheters** with new electrode configurations.

Daig provides a broad range of specialty **catheters** to cardiologists and electrophysiologists who specialize in heart rhythm disorders. Daig's **catheter** products complement pacemaker and implantable defibrillator (ICDs) products offered by St. Jude Medical's Cardiac Rhythm Management Division (CRMD).

The use of **catheters** for mapping and related **ablation** procedures provides a less invasive and in some cases more therapeutic approach to the treatment of certain cardiac conduction disorders than electrical stimulation devices, such as pacemakers or ICDs. Diagnostic **catheters** are inserted into the heart to map the electrical conduction pattern of a specific region of the heart. **Ablation catheters** are used to deliver energy to **ablate** (by burning) tissue causing the arrhythmia.

Industry analysts forecast that **catheter** mapping and **ablation** to treat cardiac rhythm disorders are a source of growth for cardiac rhythm management suppliers, including St. Jude Medical, given the size of patient populations with atrial and ventricular arrhythmias. The worldwide electrophysiology (EP) **catheter** market is estimated at over $200 million, growing at an annual rate in excess of 15%.

Commenting on the decision to expand the Livewire(TM) Duo-Decapolar **catheter** product line, Michael J. Coyle, President of Daig, said, "With the launch last year of our Duo-Decapolar products, Daig raised the performance standard for all 20 electrode **steerable** electrophysiology **catheters** and continued a tradition of providing innovative tools for electrophysiology supported by the highest level of service. Given the very positive response of our customers...

...where Daig has created a range of standard and specialty products to provide the physician choice for a particular application, the Livewire(TM) Duo-Decapolar **catheter** is just one of several choices of technology Daig offers for global mapping of the sequence of activation in the heart.

"We believe the Livewire(TM) Duo-Decapolar **catheter** is the finest 20 electrode 1catheter available from any supplier due to its design and unique performance features. No other competitor offers the same essential combination of **catheter** construction, **flexible** tip as well as control of tip **deflection** . This product is just one of several options Daig provides to our electrophysiologist customers for mapping," Coyle concluded.

The Daig Livewire(TM) Duo-Decapolar **catheter** is a 20 electrode

steerable catheter designed for temporary recording, mapping or pacing several types of atrial arrhythmias including atrial flutter, sinus node reentry, inappropriate sinus tachycardia, right sided WPW, and...

...up to 10 electrograms, with each electrode pair producing one electrogram to facilitate complex mapping of the heart by electrophysiologists. Some physicians prefer using a **catheter** with 20 electrodes versus a standard decapolar **catheter** with 10 electrodes as the extra electrocardiogram recordings can provide additional information, which my be useful to diagnose the arrhythmia.

The **catheter** 's proprietary "power **steering** " mechanism and superb handling characteristics are designed to allow a clinician to gain quick access into a variety of locations in the right atrium of...

...positioning. Other features include: a "super-large curl" style to facilitate mapping the large endocardial circumference of the right atrium, braided and unbraided proprietary polyurethane **catheter** shaft, extra long distal **catheter** segment and an automatic locking mechanism.

St. Jude Medical, Inc. (www.sjm.com) develops, manufactures and distributes medical devices for the global cardiovascular market. The Company serves patients and its health care customers worldwide with the highest quality products and services including heart valves, cardiac rhythm management systems, specialty **catheters** and other cardiovascular devices.

SOURCE St. Jude Medical, Inc.

-0- 5/4/98

/CONTACT: Laura Merriam, Investor Relations, 612-766-3029, or Peter Gove, Media...

PRODUCT NAMES: 3842243 (Diagnostic Balloon **Catheters**)

19980504

16/3,KWIC/19 (Item 19 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

05134203 Supplier Number: 47837253 (USE FORMAT 7 FOR FULLTEXT)

CLINICAL EVALUATION BEGINS ON NEW MEDTRONIC THERAPY FOR HEART DISEASE THAT AFFECTS 2 MILLION AMERICANS

News Release, pN/A

July 15, 1997

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Trade

Word Count: 532

(USE FORMAT 7 FOR FULLTEXT)

TEXT:

MINNEAPOLIS, MN, July 15, 1997 -- Medtronic, Inc. (NYSE: MDT), announced today the beginning of U.S. clinical evaluation of a new **ablation** system to treat atrial fibrillation by creating linear lesions in the interior wall of the heart's upper chamber to interrupt errant electrical impulses that...

...to beat too fast. Physicians at Indiana University, the University of California at San Francisco and the University of Michigan will evaluate the Medtronic Amazr **Catheter** Series to be used with the Medtronic Atakr **Ablation** System. Cardiologists and electrophysiologists at these centers, as well as at European centers, were instrumental in guiding the

development of the new **catheters** . "Atrial fibrillation is not only the most common heart rhythm abnormality physicians encounter, but it is also one of the most frustrating to treat," said...

...preventing errant rhythms. The procedure is effective but requires open-heart surgical techniques, with the accompanying risk, trauma, hospitalization and lengthy recovery period. The Amazr **catheter** , **maneuvered** into the atrium from an incision in the groin, is designed to accomplish the compartmentalization with radiofrequency **ablation** in a less invasive way. The devices incorporate technology designed to enhance positioning and contact with the inner atrial wall over a length sufficient to produce the desired lesion through a series of **flexible** coil electrodes. Each electrode contains a thermocouple, which, when used in conjunction with the Atakr radiofrequency generator, controls the temperature at safe levels throughout the procedure. The Atakr system was cleared for commercial release in the United States in February, 1995, as the first such **ablation** system with automatic temperature control. European clinical evaluations of the Atakr/Amazr system began June 20 at the Ospedale Civile in Asti, Italy. The first patient, treated by Drs. Gaita and Riccardi, was cured of atrial flutter, an irregular heart rhythm sometimes associated with atrial fibrillation. **Ablation** is the second product to enter clinical evaluation as part of Medtronic's over-all approach to develop alternative therapies for atrial fibrillation. The first...
PRODUCT NAMES: 3841214 (Heart **Catheterization** Systems)
19970715

16/3,KWIC/20 (Item 20 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

01154186 Supplier Number: 41311633 (USE FORMAT 7 FOR FULLTEXT)
IN MY HANDS; Transitional Cell Carcinoma of The Renal Pelvis Better Identified
Urology Times, p19
May, 1990
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 1646

... a radiolucent filling defect as soft tissue and by doing so exclude the presence of a nonopaque calculus.

The combination of cytology, ureteroscopic (rigid or **flexible**) visualization, and biopsy of the renal pelvic and/or ureteral pathology defines the nature of the soft tissue defect and specifically identifies the presence of...

...of contralateral occurrence, and the feasibility of continued visual surveillance of the remaining urothelium with ureteroscopy after a renal conserving procedure support consideration of tumor **ablation** by endoscopic **maneuvers** or open surgery other than nephroureterectomy. As is the case with partial nephrectomy for renal cell carcinoma, the successful application of renal preserving procedures in...

...cost of periodic radiologic and endoscopic procedures, and of anesthetics necessary for follow-up after preserving surgery; these can be avoided by total upper tract **ablation** by a single procedure.

Diagnosing Filling Defects

When an intravenous urogram identifies a radiolucent filling defect in

the renal pelvis, and ultrasound and/or computed tomography (CT) does not identify a stone, I place a ureteral **catheter** under fluoroscopic control to the identified level of the lesion. I try to avoid injection of contrast until saline barbotage washings have been obtained.

Clear...

...pyelography is the initial procedure.

I obtain a contralateral retrograde pyelogram to assess that collecting system for any abnormality. I then use rigid and/or **flexible** ureteroscopy to visualize the morphologic characteristics of the lesion, whether distinctly papillary with a narrow stalk, or nodular or sessile with a broad base, to...

19900501

16/3,KWIC/21 (Item 1 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

14285581 SUPPLIER NUMBER: 82651637 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Medical management of advanced heart failure. (Clinical Cardiology).
Nohria, Anju; Lewis, Eldrin; Stevenson, Lynne Warner
JAMA, The Journal of the American Medical Association, 287, 5, 628(13)
Feb 6, 2002
ISSN: 0098-7484 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 11619 LINE COUNT: 01068

... greater than 10 mm Hg to predict a pulmonary wedge pressure of less than or greater than 22 mm. (25) Abdominojugular pressure, (26) the Valsalva **maneuver** , (27) and intensity of the pulmonic component of the second sound provide additional information to practiced examiners.

The most accessible evidence of perfusion is blood...and arterial vasodilation, with increases in cardiac output, which in turn improve response to intravenous diuretics. Titration is usually monitored invasively using a pulmonary artery **catheter** . The optimal hemodynamic profile achieved is then maintained by adjusting oral vasodilator agents, usually combinations of ACE inhibitors, nitrates, and sometimes hydralazine, as nitroprusside is...

...need to be adjusted simultaneously, therapy guided by empiric assessment is ineffective to maintain symptom relief, or intravenous inotropic agents cannot be weaned.

Pulmonary artery **catheterization** is routinely performed to evaluate pulmonary vascular resistance in potential transplantation candidates. Leaving the **catheter** in while redesigning therapy over a 24- to 72-hour period has often been followed by prolonged stabilization without transplantation. (36,43) This experience has...net diuresis. When weight gain suggests volume retention, the usual dose is supplemented with transient dose doubling or intermittent addition of a thiazide, in a **flexible** patient-guided program. (22) Patients with recurrent volume retention despite high maintenance doses of furosemide may benefit from more reliable absorption of the more costly...response to changing volume status is the most important aspect of ongoing care for advanced heart failure. (6)

Patient education includes frequent review of a **flexible** diuretic plan adjusted according to daily weights and specific information on sodium restriction. (22) Fluid restriction to 2 L daily may improve stability for patients...patients cannot expect transplantation. Reluctance to confront the impending end of life may lead to the complex prescription of home inotropic infusions, requiring indwelling central **catheters** with high infection risks, and precious community nursing resources. For most patients truly refractory to other therapies, this approach complicates the end of life while...

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ku(28.) Nohria A, Tsang S, Dries DL, Fang JC, et al. Bedside assessment of hemodynamic profiles identifies...oral diuretics

Renal function stable or improving
Home Maintenance Plan
Patient and family education about
Sodium restriction
Fluid limitation
Medication schedule
Medication effects
Exercise prescription
Flexible diuretic plan
Scheduled call to patient within
3 days
Indications for when to call nurse,
physician, or 911
Clinic appointment within 5
to 10 days

20020206

16/3,KWIC/22 (Item 2 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB
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12865595 SUPPLIER NUMBER: 67589484 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Coronary Artery Stents.(Clinical Cardiology)
Suwaidi, Jassim Al; Berger, Peter B.; Holmes, David R., Jr.
JAMA, The Journal of the American Medical Association, 284, 14, 1828
Oct 11, 2000
ISSN: 0098-7484 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 9361 LINE COUNT: 00925

... increase procedure success rates, and decrease the need for emergency coronary artery bypass graft surgery.

Conclusions Intracoronary stents have become an essential component of the **catheter** -based treatment of coronary artery disease. The evidence indicates that elective stenting, rather than provisional stenting or balloon angioplasty alone, improves clinical outcomes in the...

...to antiplatelet therapies; and (6) widespread use of stents for many clinical presentations and lesion types. Throughout these phases, stent technology has improved with more **flexible** and deliverable st ents, allowing an increasing number of angiographic lesion subsets to be treated.

Scientific knowledge about stents has expanded rapidly. In 1996, the
...
...available. Stents range from 8 to 38 mm in length and from 2.5 to 4.0 mm in diameter. Stents differ in interunit connections, **flexibility** , radiopacity, surface area coverage, metal content, and metal composition (although the overwhelming majority are 316L stainless steel) (FIGURE). Selection of a specific stent for a...152-154) The use of stents as drug delivery platforms re-mains promising, but unproven.

CONCLUSION

Coronary artery stents are essential in every modern interventional **catheter** -ization laboratory. Intracoronary stents have increased the safety of interven-tional procedures and have increased revascularization procedure success rates, decreasing the need for emergency CABG...Saito S, Hosokawa G, Tanaka S, Nakamura S, for the PASTA Trial Investigators. Primary stent implantation is superior to balloon angioplasty in acute myocardial infarction. **Catheter** Cardiovasc Interv. 1999; 48:262-268.

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Acute and late outcome after use of 2.5-mm intracoronary stents in small ((less than)2.5 mm) coronary arteries. **Catheter** Cardiovasc Intent. 2000;49:121-126.

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Studies Comparing Balloon Angioplasty
With Stents for Native Coronary Artery Lesions(*)

Study, y	No., Stent/ Follow-up...	Angiographic Restenosis, %

20001011

16/3,KWIC/23 (Item 3 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

09976940 SUPPLIER NUMBER: 20116176 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Transplantation immunology.(Primer on Allergic and Immunologic Diseases)
VanBuskirk, Anne M.; Pidwell, Diane J.; Adams, Patrick W.; Orosz, Charles G.
JAMA, The Journal of the American Medical Association, v278, n22, p1993(7)
Dec 10, 1997
ISSN: 0098-7484 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 7180 LINE COUNT: 00668

... a lesser extent, veins of the graft.(54) This neointima contains, among other things, smooth muscle cells and large amounts of extracellular matrix material. Vascular **lesions** are confined to the graft, and the graft vessels appear to be affected at random and to varying degrees, even within the same region of the graft.(55) The vascular **lesions** differ somewhat from those associated with atherosclerosis, but are similar to **lesions** that sometimes develop after balloon **catheterization** or vein grafting. The formation of vascular **lesions** is frequently associated with prominent interstitial fibrosis, reflecting the ongoing deposition of mature connective tissue in the interstitium.(54,55) Associated leukocytic infiltration is usually...promising approach involves angiopeptin, a somatostatin analog under clinical trial, which appears to interfere with smooth muscle cell participation in the development of chronic vascular **lesions** .(70)

BONE MARROW TRANSPLANTATION

Bone marrow transplantation is the preferred treatment for many hematologic malignancies, including (1) diseases of hematopoietic origin such as leukemias, lymphomas...

...disorders such as severe combined immunodeficiency, thalassemia, or sickle cell anemia; and (4) therapy for genetic deficiencies.(71) Because the patient's immune system is **ablated** prior to transplantation, the greatest risk after engraftment is not rejection of the bone marrow by the patient's immune system, but rather an immune...MHC complexes. Immunol Today. 1993;14:597-602.

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19971210

16/3,KWIC/24 (Item 4 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

06494257 SUPPLIER NUMBER: 13998765 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Junctional tachycardia and the role of catheter ablation .
Kuck, Karl-Heinz; Schluter, Michael
Lancet, v341, n8857, p1386(6)
May 29, 1993
ISSN: 0099-5355 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 5498 LINE COUNT: 00461

Junctional tachycardia and the role of catheter ablation .

ABSTRACT: **Catheter ablation** may be an effective treatment for patients with symptomatic atrioventricular nodal re-entrant tachycardia (AVNRT), one type of junctional tachycardia. Junctional tachycardia is a rapid...

...arises in response to an electrical impulse arising in the atrioventricular node. This type of irregular heart beat is often caused by an abnormal conduction **pathway** between the atrium and the ventricle of the heart. **Catheter ablation** involves destroying the abnormal **pathway** using a **catheter** -induced radiofrequency current. The location of the abnormal **pathway** should be identified very precisely for **catheter ablation** to be successful. This procedure can cause **lesions** that are several millimeters wide and deep. **Catheter ablation** has been successful in treating patients with symptomatic AVNRT, but more long-term follow-up needs to be done on these patients.

TEXT:

...by the junctional tissues of the specific conduction system. The term junctional tachycardia therefore encompasses the atrioventricular reentrant tachycarchas associated with an accessory atrioventricular (AV) **pathway** , including the permanent form of junctional reciprocating tachycardia (PJRT) and tachycardias involving Mahaim fibres (see below), as well as atrioventricular nodal re-entrant tachycardia (AVNRT). After atrial fibrillation and flutter, these types of tachycardia are the most common supraventricular arrhythmias encountered clinically. Moreover, rendered them advances in **catheter ablation** techniques have rendered them amenable to cure by selective application of radiofrequency current. In this article we will focus on the chemical aspects of **catheter ablation** of junctional tachycardias and on the insights gained into the pathophysiology of these arrhythmias.

The principle of **catheter ablative** therapy was established in 1982, when Scheinman et al[1] and Gallagher et al[2] reported closed-chest **ablation** of the AV junction with DC shocks to control refractory supraventricular arrhythmias. The disadvantages of the DC approach are now well recognised--ie, the resulting large **lesions** ; risk of barotrauma and of rupturing thin-walled structures; lack of graded energy delivery; and need for general anaesthesia. These drawbacks are not present with...

...and ventricle (formerly known as the Kent bundle) is a congenital disorder that may precipitate paroxysmal episodes of seriously symptomatic re-entrant tachycardia. These anomalous **pathways** of AV conduction lie along the mitral and tricuspid valve rings (parietal **pathways**) or within the septum. They may have bidirectional conduction properties or, in about 25% of patients, conduct only in a retrograde direction ("concealed" accessory **pathways**). **Pathways** capable of antegrade conduction give rise to delta-wave configuration of QRS complexes during sinus rhythm, thus feature disappears during the usual orthodromic type of AV tachycardia in which a depolarisation wavefront is conducted via the specific conduction system as its antegrade limb and the accessory **pathway** as its retrograde

limb (Wolff-Parkinson-White syndrome). In a few patients, antidromic (wide-QRS) tachycardia with reversed wavefront propagation is observed. Concealed accessory connections...

...that circumvents surgery is highly desirable, especially since the vast majority of patients with tachyarrhythmias mediated by an accessory connection have no organic heart disease.

Catheter ablation

Several large studies have now established **ablation** of an accessory fibre with **catheter** -induced radiofrequency current as first-line treatment in specialised centres for both adult and paediatric patients.[6-9] Reported success rates usually exceed 90%. Serious...

...of procedure-related deaths is well below 0.5%. Surgical dissection of accessory AV connections has therefore been rendered all but obsolete.

The outcome of **catheter ablation** depends critically on the precision with which the accessory **pathway** is localised, because radiofrequency current gives rise to **lesions** of several millimetres in width as well as in depth.[10,11] Localisation is carried out by **catheter** mapping techniques under biplane fluoroscopic guidance.[12,13] Conventionally, the anatomical site of an accessory connection is indicated by the site of earliest ventricular activation during sinus rhythm or atrial pacing and/or by the site of earliest atrial activation during tachycardia or ventricular pacing. Improved **catheter** techniques have enabled direct bipolar recording of accessory **pathway** activation[14] and this approach is now the preferred mode of localising an accessory fibre in some centres.[6,7,13] **Catheters** with an orthogonal electrode configuration (ie, with three groups of four circumferential electrodes arranged in an orthogonal fashion) are mainly useful in searching for left-sided accessory **pathway** activation potentials within the coronary sinus. **Catheters** with a standard (ie, longitudinal) electrode configuration and a distal 2 mm interelectrode distance may be used successfully to detect accessory **pathway** activation at all locations inside the

Although standard electrode **catheters** were initially used for **ablation** purposes with little success,[7,13] new **catheter** design have contributed substantially to the increased acceptance of **catheter ablation** procedures. These **catheters** are 5 to 7 French in diameter, usually have a **flexible** tip to ease **manoeuvrability** along the AV anuli,

and the tip electrode is lengthened to 3 or 4 nun. Compared with standard 2 mm tip electrode **catheters** , there are fewer current breakdowns caused by a sudden rise in impedance due to the formation of blood clots, and more electrical power (25-40 watts) can be applied. Blood coagulates if the electrode-tissue interface temperature exceeds 100 [degrees] C,[15] and thermistor-controlled electrode **catheters** have been introduced to avoid this complication.

Since an accessory fibre has both an atrial and a ventricular insertion, an attempt at **ablation** may be directed to either site. Programmed stimulation studies have shown that the vulnerable link along the axis composed of atrium [direction] accessory **pathway** [direction] ventricle is the atrium/ accessory- **pathway** interface in most right-sided **pathways** , whereas left-sided **pathways** most often block conduction at the accessory- **pathway** /ventricle interface.[12] Consequently, a venous approach (femoral or jugular) seems to be the logical choice for **ablation** of accessory connections on the right free wall and along the septum.[7,13] Septal accessory **pathways** require special attention, because they may bridge the AV groove in proximity to the specific conduction system. However, anteroseptal fibres (located anterosuperiority to the bundle...

...midseptal fibres between the bundle of His and the coronary-sinus ostium) can be differentiated from the structures of normal conduction and can be safely **ablated** from an atrial **catheter** position.[16,17]

Accessory fibres traversing die pyramidal posteroseptal space from the posteromedical aspect of either atrium to insert into the posterior ventricular septum (usually referred to as posteroseptal **pathways**) may be **ablated** by use of various approaches depending on the precise course of the fibre. With femoral venous access, possible **ablation** sites identified by precise **catheter** mapping are the immediate vicinity of the coronary-sinus ostium, the proximal coronary sinus, and the middle cardiac vein draining into it. An arterial approach with retrograde introduction of the **ablation catheter** into the left ventricle may also be attempted for posteroseptal accessory connections.

Insertion of a **catheter** into the left ventricle to probe for an accessory **pathway** was introduced in 1986[18] and was later established as the standard approach to **ablate** the ventricular insertion of left free-wall accessory **pathways** .[6,8] Recently, trans-septal puncture to gain access to the atrial insertion of such **pathways** has been advocated as an alternative. With increasing investigator experience, localisation and **ablation** of manifest accessory **pathways** (ie, in patients with Wolff-Parkinson-White syndrome) may be attempted during sinus rhythm by use of a single **catheter** without the need for pacing and mapping **catheters** . This technique has shown promise for left free-wall accessory **pathways** , and the overall duration of the procedure and fluoroscopy time are significantly reduced compared with multiple- **catheter** investigations.[19] The single- **catheter** technique is particularly suitable for children.[20]

Permanent junctional reciprocating tachycardia

By contrast to the rapid ventriculoatrial conduction facilitated by most accessory fibres during orthodromic...

...R-P interval longer firm the P-R interval. Once diagnosed and differentiated from the atypical form of AVNRT, PJRT lends itself to abolition by **catheter ablation** with preservation of AV nodal conduction. The accessory fibre is generally confined to the posteroseptal space, but a recent preliminary study showed additional sites for the anomalous connection in PJRT along the posterior to lateral region of the mitral valve ring.[21] The site of the accessory **pathway** can be differentiated, with a subsequent decision on the optimum approach to **ablation** , by analysing P-wave polarity in leads I and [V.sub.1.][21]

Mahaim fibres

Catheter ablation procedures have also shed light on the debate about the anatomical course and the electrophysiological properties of the so-called Mahaim fibres. These anomalous connections...

...the tricuspid valve ring and should therefore be regarded as atriofascicular.[22] They show antegrade-only decremental conduction properties, and the optimum target site for **catheter ablation** seems to be the endocardial breakthrough of the fibre beneath the tricuspid anulus.

Indications for **catheter ablation**

Catheter ablation of an accessory AV fibre is indicated in all symptomatic patients, to avoid either potentially lethal arrhythmia-related complications or a lifetime dependence on antiarrhythmic...

...centres by investigators with extensive experience in die electrophysiological investigation of patients with this cardiac abnormality. In symptom-free patients the decision to proceed with **catheter ablation** should be carefully weighed and probably advocated if an occupational hazard (airline pilot, athlete) is present.

Atrioventricular nodal re-entrant tachycardia

Description of the pathophysiologicalMoe et al[25] used the term echo

beats to describe return extrasystoles and argued for the existence of parallel **pathways** within the node that were thought not to be permanently different in functional terms but perhaps anatomically distinct. The phenomenon of a sustained reciprocating rhythm...

...of the re-entrant circuit. Major arguments in favour of the atrium as a critical component are (a) suppression of tachycardia inducibility by surgical or **catheter** techniques without alteration of AV nodal conduction during sinus rhythm; and (b) that AVNRT can be reset by well-timed atrial extrastimuli. However, this last...

...that different anatomical and functional areas are involved. It is generally accepted that an area of rapid conduction, referred to as the fast AV nodal **pathway** , and an area of slow conduction, referred to as the slow AV nodal **pathway** , exist to allow and sustain AV nodal re-entry. The area of fast AV nodal conduction is located anteriorly, close to the penetrating bundle, whereas...

...points from the re-entrant circuit were the only difference, the anterior dissection would not have selectively terminated one type of tachycardia.

Techniques of radiofrequency **ablation**

Radiofrequency current **catheter ablation** has not only led to new interest and insight into the pathophysiology of AVNRT but also offers a new method of treating patients with this arrhythmia. Thus, the results of radiofrequency **ablation** have led to a profound change in therapy of AVNRT, from a palliative approach with drugs to a curative approach. Two techniques have been successful. The anterior approach is used to modify or **ablate** fast **pathway** conduction.[31-34] This technique is very similar to that used for complete interruption of AV nodal conduction in patients with atrial fibrillation. After recording His bundle activity, the operator withdraws the **ablation catheter** anterosuperiorly until a large atrial potential with no or only a very small His bundle potential is recorded. Radiofrequency energy is gradually increased at this high incidence of third-degree AV block. However, with the anterior approach to the fast **pathway** the risk of total AV block still exists.

As an alternative, the posterior approach is used to modify or **ablate** slow **pathway** conduction. The **catheter** may be guided either by electrophysiological landmarks[35,36] or by purely anatomical criteria as judged from different radiographic views.[33,37,38] The electrophysiological approach introduced by Jackman et al[35] is based on the recording of a slow **pathway** activation potential. This potential is believed to represent the atrial insertion of the slow AV nodal **pathway** and is observed in the posteroseptal right atrium as a sharp bipolar **deflection** succeeding or preceding atrial activation during antegrade or retrograde slow **pathway** conduction, respectively (figs 2, 3). It can be recorded in the anterior, posterior, and inferior vicinity of the coronary sinus ostium, and sometimes even within the coronary sinus itself. Radiofrequency current is delivered at sites where such a potential is present.

Since the electrocardiographic characteristics of the slow **pathway** potential (morphology as well as timing with respect to the local atrial and ventricular potentials) and its presence or absence after radiofrequency current application are very different depending on the **ablation** centre, the true nature of a potential is still debated. Jackman et al[35] provided evidence from pacing techniques that the potential may represent activity from the atrial insertion of the slow **pathway** . Since pacing techniques (figs 2, 3) have not always been used in subsequent publications by other researchers,[36] one cannot exclude the possibility that such...

...those studies might represent a different type of electrical activity. The recording of such a potential may or may not be associated with successful slow **pathway** modification, and different origins of the potential cannot be ruled out.

Several techniques have been reported for the anatomical posterior approach to slow **pathway** **ablation** /modification. In two studies,[33,37] **catheters** placed at the bundle of His and inside the coronary sinus served as reference points marking the anterior and posterior border, respectively, of the triangle of Koch. Radiofrequency current was then applied at the tricuspid anulus irrespective of any **pathway** activation recordings, with the **ablation** **catheter** in a posteroseptal position. When current delivery at this site failed to modify or **ablate** slow **pathway** conduction, the **catheter** was gradually moved anteriorly along the tricuspid anulus towards the midseptal area, and current was applied at each successive site until AVNRT was no longer inducible. Other researchers[38] reported successful block of the slow **pathway** at its entrance to Koch's triangle by placing successive **lesions** between the tricuspid anulus and the coronary sinus ostium, moving the **catheter** from inferior (amplitude of ventricular activation exceeds that of atrial activation) to superior (amplitude of atrial activation exceeds that of ventricular activation).

The table summarises the results of the posterior approach. Irrespective of the technique used (slow **pathway**) potential recording or anatomical) the results are impressive. The success rate varies between 88 and 100%, with only a very slight risk (<1%) of inadvertent...

...may be somewhat higher if the operator is inexperienced, but it will still be significantly lower than for the anterior approach as long as the **ablation** **catheter** is kept in the posterior septal area (ie, in the vicinity of the coronary sinus ostium). **Catheter** displacement towards the midseptal area may be associated with a higher incidence of total AV block.

Except for complete heart block, other complications in **ablation** of AVNRT are extremely rare and consist mainly of those due to **catheter** placement rather than to radiofrequency current application. However, one should not forget that the induction of a total AV block is a serious event that...

...radiofrequency current application. Current delivery must be interrupted immediately if loss of the retrograde P wave occurs, since this indicates conduction block in the fast **pathway** and, therefore, a **catheter** position dangerously close to the AV node. Moreover, total AV block may occur even if radiofrequency current is applied to the posterior region.

In patients with AVNRT in whom a sustained tachycardia can be induced during the **ablation** session, the endpoint of the study should be the inability to induce a sustained arrhythmia, even if single AV nodal echo beats remain inducible. In...

...from those who have an inducible sustained tachycardia at the beginning of the study. Recurrence of AVNRT during follow-up necessitating a repeat attempt at **catheter** **ablation** is unquestionably preferable to the inadvertent induction of total AV block requiring permanent pacemaker implantation.

Indications

Radiofrequency current application to block either fast or slow **pathway** conduction has become the treatment of choice for patients with symptomatic AVNRT and has almost totally replaced drug treatment in these cases. However, despite the...

...degree AV nodal block at older ages than a normal population needs to be assessed.

John Sims EIC 3700 308-4836

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16/3,KWIC/25 (Item 5 from file: 148)
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... and aerospace applications. Using magnetron sputtering processes, it deposits extremely thin layers of elements and compounds, including metals, alloys, and ceramics; primarily onto wide-web **flexible** substrates, such as polyesters, and other polymeric films. These coatings

selectively reflect, transmit, or absorb infrared (heat), visible (light), and other types of electromagnetic radiation...

...the electromagnetic spectrum. Such products include the visible, infrared, microwave, or radio frequency portions. Its defense and defense-related products include various custom films on **flexible** and rigid substrates, and a heat resistent, high- durability coating. Its electronics products consist of transparent conductive thin films for electronic touch panels, liquid crystal...the Furon Co. Terms of the transaction were not disclosed. Principals: Keene, through its wholly owned subsidiary, Reinhold Industries Inc., custom manufactures advanced composite materials, **ablatives** , and structures for aerospace, defense, and commercial applications. Primary products are exit cones, re-entry heat shields, and heat absorbing composite nozzles. Customers are prime...Its Palomar MSI subsidiary is a leading supplier of equipment and materials used in the manufacture of multi-layer ceramic capacitors with capabilities for handling **flexible** ceramic materials and very small parts. The product line of Pacific Vista Systems includes equipment used by multi-layer ceramic, tantalum electrolytic and film capacitor...instrument systems, such as patient monitoring and vital signs measurement systems, intravenous fluid control and delivery systems, implantable cardioverter/defibrillators, and peripheral and coronary atherectomy **catheter** systems; diagnostic products, including monoclonal-antibody-based diagnostic tests for prostate, infertility, pregnancy, heart attack, thyroid deficiencies, anemia and infectious diseases; and other pharmaceuticals. Its...

...devices that include temporary external cardiac pulse generators and leads and prosthetic and bioprosthetic heart valves. Among its other products are neurological simulation devices, angioplasty **catheters** , blood and oxygen instruments, vascular gifts, and drug administrators. Activitrax, one of its pacemaker products, allows a variation in heart rate as the level of...products designed to compete in the term market place. Its universal life products combine traditional life insurance protection with the ability to tailor a more **flexible** payment schedule to the individual's needs. Its group marketing offers substantially all forms of group insurance customary in the insurance industry, making available complete...

19920700

16/3,KWIC/26 (Item 6 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

06165490 SUPPLIER NUMBER: 12749818 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Radiofrequency catheter ablation **of aberrant conducting** pathways **of the heart. (Diagnostic and Therapeutic Technology Assessment - DATTA) (Questions and Answers)**
JAMA, The Journal of the American Medical Association, v268, n15, p2091(8) Oct 21, 1992
ISSN: 0098-7484 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
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Radiofrequency catheter ablation **of aberrant conducting** pathways **of the heart. (Diagnostic and Therapeutic Technology Assessment - DATTA) (Questions and Answers)**

ABSTRACT: A panel of 68 cardiologists and cardiovascular surgeons reports

that radiofrequency **catheter ablation** is an effective treatment for atrial arrhythmias caused by accessory **pathways** . Accessory **pathways** are nerve fibers in the heart that bypass the normal electrical conduction system. Individuals with Wolff-Parkinson-White have accessary **pathways** , and they are susceptible to ventricular arrhythmias, which are very dangerous. Atrial arrhythmias are often treated with drugs, but in the early 1980's, a **catheter** was developed that could deliver an electric current to the accessory **pathway** that would destroy it. In 1985, radiofrequency **catheters** were developed, which are easier to control and safer. Studies of over 500 patients treated with this technique have shown that over 90% can be cured without the need for lifelong drug treatment. The effectiveness of radiofrequency **ablation** of AV nodal reentrant arrhythmias is less certain.

TEXT:

Q Is radiofrequency **catheter ablation** of accessory **pathways** (A) a safe and (B) an effective curative treatment of atrioventricular tachycardias associated with Wolff-Parkinson-White syndrome or concealed **pathways** ? (Fig 1)

Q Is radiofrequency **catheter ablation** (A) a safe and (B) an effective curative treatment of atrioventricular nodal reentry tachycardia? (Fig 2)

A The DATTA panelists considered radiofrequency **catheter ablation** to be established in terms of both safety and effectiveness as a curative treatment of atrioventricular tachycardias associated with Wolff-Parkinson-White syndrome or other concealed **pathways** . In treating nodal reentrant tachycardias, the DATTA panelists considered the safety of the technology to be promising and the effectiveness to be between the categories...

...and established.

Methods

Literature Review.--Published literature on the treatment of atrial arrhythmias was reviewed with particular emphasis on Wolff-Parkinson-White syndrome, other accessory **pathways** , and atrioventricular nodal reentrant arrhythmias. In addition to a MEDLINE search, other published studies were selected by review of the references in articles identified in...

...Disorders of impulse propagation, or reentrant tachycardias, are the most common etiology of sustained paroxysmal tachycardia.[1] They occur when the presence of aberrant conducting **pathways** , either extrinsic (accessory **pathways**) or intrinsic to the normal conducting system, permits the continuous circus movement of an electrical wave front within the heart.

This report is limited to...

...seen on the electrocardiogram and "concealed" if the electrocardiogram shows normal sinus rhythm. Atrioventricular nodal reentrant tachycardia occurs when more than one AV (atrioventricular) nodal **pathway** exists, probably due to functional differences in conduction fibers near or within the AV node itself.

Pathways that partially or totally bypass the normal AV conduction system are known as "accessory **pathways** "; old and new nomenclature of these connections are presented in Table 1.[2] In 5% to 15% of patients studied electrophysiologically or undergoing surgery for arrhythmia due to a single accessory **pathway** , additional accessory **pathways** are discovered.[2] Furthermore, the presence of accessory **pathways** may be associated with other congenital abnormalities, such as Ebstein's anomaly.[1]

A direct connection provided by one or more congenital muscular ridges between atrium and respective ventricle (accessory AV **pathways** or

Kent bundles) is the most frequent accessory **pathway** pattern. The presence of an accessory **pathway** capable of antegrade conduction of an impulse to the ventricle (preexcitation) together with the occurrence of paroxysmal tachycardia characterizes the Wolff-Parkinson-White (WPW) syndrome...

...are at risk for AV reentrant tachycardia. When reentrant tachycardia occurs in these patients, the impulse is most often conducted antegrade over the normal AV **pathway** and retrograde ...atrial fibrillation.

The WPW syndrome derives particular importance because of its association with more serious arrhythmias. The potential for antegrade conduction over the WPW accessory **pathway** effectively removes the protective effect of normal AV node conduction delay during atrial arrhythmias, permitting rapid ventricular response. Thus, any atrial tachyarrhythmia, such as atrial...

...characterized by preexcitation: during normal sinus rhythm, the impulse is conducted simultaneously in antegrade fashion over both the AV conduction system and the accessory AV **pathway** (s). The typical electrocardiogram shows a short (< 0.12 second) PR interval since the impulse bypasses the normal AV node conduction delay; a widened QRS...

...initial slur on the upstroke on the QRS, the delta wave, caused by the slow intramyocardial conduction of the impulse delivered by the anomalous accessory **pathway** .[4]

Atrioventricular reentrant tachycardia (AVRT) may also be due to an accessory **pathway** that conducts only retrograde (concealed bypass tract). Thus, there is no electrocardiographic evidence of preexcitation during normal sinus rhythm. Atrioventricular reentrant tachycardia is maintained by antegrade conduction over the normal conduction system followed by retrograde conduction over one or more accessory **pathways** connecting ventricle to atrium.[2] Patients with this disorder display reentrant tachycardia similar to that of patients with the WPW syndrome. However, because the bypass...

...tachyarrhythmias associated with the WPW syndrome.[1]

Atrioventricular nodal reentrant tachycardia is the most common cause of supraventricular tachycardia in adults.[1] Dual AV nodal **pathways** differ from accessory AV **pathways** in that the reentry circuit depends on the presence of electrophysiologically separate conducting fibers near or within the AV node.[1,5] The resulting AV...

...characterized electrocardiographically by a narrow QRS complex and rates of 120 to 250 beats per minute.[1] In most episodes, the impulse traverses a "slow" **pathway** in antegrade fashion, returning to the atrium over a "fast" **pathway** .[6] These arrhythmias are not associated with a particular age group or gender or with other diseases.[1]

Diagnosis and Treatment

Patients with reentrant tachycardias...

...heart disease. Patients with the WPW syndrome are at particular risk for serious episodes of atrial fibrillation accompanied by rapid ventricular responses via the accessory **pathway** .

Protocols for the diagnosis and risk stratification of patients with reentrant tachycardias have been described.[2] In general, treatment regimens are determined by the frequency and severity of the episodes of tachycardia and vary somewhat according to the type of reentrant tachycardia. Vagal **maneuvers** , such as applying pressure and massage to the carotid sinus, eliciting a "gag" reflex, or immersing the face in cold water ("dive reflex"), may be...

...any of the reentrant tachyarrhythmias (AVRT or AVNRT) if initiated quickly after the onset of tachycardia and if hypotension is not present.[2]

When vagal **maneuvers** fail to terminate the tachycardia, drug therapy is considered. Important differences between acute and chronic pharmacologic management of supraventricular tachycardia have been reviewed.[7-11...

...conduction (digoxin, calcium channel blocking drugs, [beta]-adrenergic blocking drugs) in patients with known WPW syndrome. Because these drugs do not slow conduction over accessory **pathways** , they may paradoxically increase ventricular rate, particularly during atrial fibrillation.[7,10,11] Direct current cardioversion remains the treatment of choice when supraventricular tachycardia with hemodynamic compromise occurs as a complication of the WPW syndrome.[3,10] Class I antiarrhythmic agents have been used to manage atrial fibrillation when **ablative** therapy must be deferred.[10]

Antiarrhythmic drugs that prolong the refractory period of the AV node (ie, adenosine, verapamil, diltiazem, propranolol) or that lengthen the refractory period of the accessory **pathway** (ie, procainamide, flecainide, propafenone) may halt AV reentrant tachycardia.[2,12] Atrioventricular nodal reentry may be treated similarly with drugs that affect the slow **pathway** (ie, digoxin, [beta]-blockers, calcium antagonists) or the fast **pathway** (quinidine-like agents, amiodarone, propafenone, flecainide) within the AV conducting ...in young patients, or presence of other incompatible medical conditions. Alternative therapies for these patients include specifically designed pacemakers[13] and surgical division of accessory **pathways** by either an endocardial approach[14] or a closed heart cryosurgical **ablative** technique.[15] Recently, **catheter** -based **ablative** techniques have developed.

Catheter Ablative Therapy

Catheter ablative techniques for treatment of refractory supraventricular tachyarrhythmias were introduced 10 years ago. The procedure involves placement of multiple recording **catheters** within the heart for electrophysiologic localization and mapping of aberrant conduction **pathways** . An additional " **ablative** " **catheter** , which is connected to an energy source, is then positioned directly on the identified aberrant conducting tissue and the energy is applied. Subsequent electrophysiologic evaluation can immediately verify a successful **ablation** .

Initially, **ablative** therapy employed high-energy direct current (DC) to disrupt the AV node; lifelong cardiac pacing was required after the procedure. More recently, high-energy DC shocks have been used to modify, rather than to **ablate** , the AV node in patients with AV nodal reentry. Haissaguerre et al,[16] in the largest reported series (21 patients) of **catheter** treatments using DC shocks to modify the AV node, describe a success rate of 85% with a 10% incidence of inadvertent AV block. In an earlier report on transcatheter application of high-energy shocks to the atrial insertion of accessory **pathways** , Warin et al[17] present a modified **ablative** procedure that avoids **catheterization** of the coronary sinus in the approach to right-sided **pathways** and approaches left lateral and posterolateral accessory **pathways** via a patent foramen ovale or a transseptal **catheterization** . These technical innovations led to the achievement of a high success rate (34 of 35 patients free of arrhythmias without medication) for **ablation** of previously inaccessible accessory **pathways** . The incidence of serious adverse effects was significantly decreased as well.

Studies of long-term effects of DC current **ablative** procedures reveal improved quality of life and dramatic decreases in health care costs for patients with drug-resistant atrial arrhythmias.[18] Yet, while

complications with **catheter ablative** procedures are infrequent, the complications can be serious. Spasm of the coronary artery with resultant myocardial infarction, rupture of the coronary sinus, cardiac tamponade, complete...

...have been reported.[17,19,20] Indeed, the incidence of these serious complications, together with the risk of later development of AV block after failed **ablative** attempts, has modified initial enthusiasm and prompted the development of alternative energy sources.

Alternatives to high-energy DC shocks include short-duration nonarcing DC, low-voltage DC, suction electrode energy delivery techniques, and radiofrequency (RF) energy. Their characteristics and uses are listed in Table 2.

Radiofrequency **Catheter Ablation**

Radiofrequency current was first introduced for **ablation** of the AV junction in a closed chest canine model by Huang et al[21] in 1985. Although the technique has been applied successfully in humans to treat a variety of refractory cardiac arrhythmias,[22] published data on RF **ablation** for interruption of disordered AV conduction remain more preliminary than those for DC **ablative** procedures.[23]

Several recent large studies[24-27] of RF **catheter** techniques for **ablation** of accessory **pathways** [24-31] and for modification of the AV junction have been reported. Van Hare et al[24] describe initially successful **ablation** in 17 of 19 **ablative** procedures in children referred because of malignant or drug-resistant supraventricular tachyarrhythmia. The procedure was ultimately curative in 14 (82%) of 17 patients. No serious complications were encountered.

Jackman et al[25] present data showing the successful elimination of accessory **pathway** conduction in 164 (99%) of 166 patients with symptomatic tachyarrhythmias associated with an accessory AV **pathway** . Patients were not excluded for any technical reason, including previously unsuccessful surgical or **catheter ablation** (11 of 166 patients). Patients received a median of three applications of RF current. The procedure, which included initial diagnostic electrophysiologic studies in approximately 35...

...after application of RF to a small branch of the coronary sinus.

Using an abbreviated protocol that combined initial diagnostic electrophysiologic study with the therapeutic **ablative** procedure in 102 patients, Calkins et al[26] report a successful outcome at 3 months in 57 (92%) of 62 patients with paroxysmal supraventricular tachycardia...

...37 (93%) of 40 patients with the WPW syndrome. Successful outcome was achieved in 37 (84%) of 44 patients during the initial session of RF **ablation** . Five patients (11%) required a second session due to recurrence of paroxysmal supraventricular tachycardia 2 days to 2 months after the first treatment. No patient...

...48 to 54 hours. Complications, occurring in two (2%) of the 102 patients, included one case of myocardial infarction due to inadvertent placement of the **ablation catheter** in the left coronary artery and one case of persistent complete AV node block 1 day after attempted RF **ablation** of typical AVNRT. Four patients experienced transient partial AV nodal block, lasting 1 to 4 hours.

Kuck et al[27] report successful **ablation** of accessory AV **pathways** using RF current in 93 (89%) of 105 patients. Eighty-three patients had WPW syndrome and 22 had concealed accessory AV connection (retrograde conduction only). Seventy-nine accessory AV **pathways** were located on the left side of the heart and 32 were located on the right side. Using large-tip electrode **catheters** and knowledge of previously observed "weak"

links along the atrium-accessory **pathway** -ventricle axis (at the ventricular insertion in left-sided and the atrial insertion in right-sided accessory **pathways**) to guide **catheter** placement, they show that RF **catheter ablation** of accessory **pathways** can be achieved irrespective of the anatomic site and electrophysiologic characteristics of the **pathway** .

Lesh et al[30] describe successful **catheter ablation** of accessory **pathways** in 89 (89%) of 100 consecutive patients. **Ablation** was achieved in 88 of 100 patients in a single session. Complications occurred in four (4%) patients and included cardiac tamponade (one), groin hematoma (one) secondary to arterial **catheter** placement, transient foot pain (one), and chest pain with transient ST elevation (one) during the application of RF energy. Nine patients experienced the return of accessory **pathway** conduction over a mean follow-up period of 10 months. Successful **ablation** was achieved in all five patients in whom the procedure was reattempted. A discussion. of cost considerations notes the average charge for **catheter ablation** to be less than 25% of the average charge for the last eight patients undergoing surgery for the WPW syndrome at the same institution.

[TABULAR DATA OMITTED]

Jackman et al,[28] in a comparison of standard and large-tip **catheter** electrodes, studied 17 patients with drug-resistant supraventricular tachyarrhythmias referred for AV junctional **ablation** . **Catheter** -delivered RF current produced complete AV block in 16 (94%) of the patients. The large-tip electrode permitted a threefold increase in delivered RF power, decreasing the number of pulses and time required to produce AV block.

Together, these studies report results of the application of RF **catheter ablation** of aberrant conduction **pathways** in more than 500 patients treated at large medical centers. Two studies examine the use of RF energy in the treatment of AVNRT. Furthermore, examination of the abstract literature reveals widespread and rapid diffusion of RF **catheter ablation** technology.

Lee et al[29] report on the use of RF energy for **catheter** modification, rather than **ablation** , of the AV node for control of AVNRT in 39 patients. Early results showed 30 (77%) of 39 patients had intact antegrade AV conduction and...

...patients and complete AV block requiring pacemaker insertion in three patients. Two patients had recurrent tachycardia 4 to 6 weeks after the procedure. The initial **ablative** procedure failed to control AVNRT in two patients.

Jazayeri et al[31] studied the selective transcatheter **ablation** of fast and slow **pathways** in patients with AVNRT. Forty-nine consecutive patients with symptomatic AVNRT were treated using RF energy. In the first 16 patients, the fast **pathway** was **ablated** by application of RF current to the anterior/superior aspect of the tricuspid annulus. In the following 33 patients, **ablation** of the slow **pathway** was successful in 30 patients. In these cases, RF energy was directed at the posterior-inferior aspect of the right interatrial septum. The remaining three patients, in whom slow **pathway ablation** failed, underwent successful **ablation** of the fast **pathway** . Four of the 19 patients in whom the fast **pathway** was **ablated** developed complete AV block, while none of the patients whose slow **pathways** only were **ablated** developed AV block. The authors conclude that slow **pathway ablation** may be safer than fast **pathway ablation** for control of AVNRT and should therefore be considered as a first approach in selective **catheter** procedures for AVNRT. [TABULAR DATA OMITTED]

Tables 3 and 4[32-52] summarize recent abstract data for the application of RF techniques for **ablation** of accessory **pathways** and of AV nodal reentry **pathways** , respectively. Radiofrequency **ablation** has

also been used in atrial flutter.[53] The experience of most centers is still limited by small numbers of patients and brief follow-up periods. **Catheter** placement techniques vary widely among centers,[23] with improved success rates generally accompanying those modifications that (1) allow complete, accurate localization of aberrant **pathways** via meticulous electrophysiologic mapping; (2) promote stable tissue- **catheter** contact, which is most critical during RF **ablation** due to the small size of the RF-induced **lesion** [23,27,32]; and (3) eliminate risk of coronary sinus perforation by use of an endocardial approach.[17]

Radiofrequency **catheter** techniques must be compared with established surgical techniques used to **ablate** accessory **pathways** or to modify AV nodal reentry circuits. The first successful surgical interruption of AV accessory **pathways** was reported by Cobb, Sealy, and others[54,55] more than 20 years ago. Since then reports of more than 1000 surgically treated patients with...

...of 540 patients with WPW syndrome reports greater improvement in the surgically treated group.[59]

Long-term follow-up evaluations of patients treated with RF **catheter ablation** are lacking at this time. However, some investigators express concern that **ablative** therapy may cause late damage to vital structures, such as coronary vessels, that lie adjacent to the **ablative lesion** .[27] This potential risk is of particular concern in the treatment of pediatric patients. Duration of the **ablative lesion** and potential complications due to the thin fibrin layers induced at sites of RF current delivery are additional unknowns. Although thrombus formation is reported in animal studies of DC **catheter ablation** , some investigators advocate anticoagulant treatment during and after any **catheter ablation** procedure, regardless of the energy source employed.[27]

In summary, current literature suggests great interest in RF **catheter ablation** and particularly in the development of highly **flexible** and multiple electrode array **catheters** as well as refined **catheter** positioning techniques for most effective delivery of the **ablative** energy. Radiofrequency current, which affects cardiac tissue by heating rather than by barotrauma, is more easily controlled than DC and induces a more discrete **lesion** , but requires more precision in delivery to a specific anatomic site.[27] Unlike DC **catheter ablation** , RF **catheter ablation** does not require the use of general anesthesia. Complications after RF **ablation** are generally fewer than with DC **ablation** and appear to be largely related to the **catheterization** techniques[17,18] rather than to the RF current. Careful long-term studies will be needed to assess its correct place in the hierarchy of...

...all associated with a P value of less than .05, indicating consensus. The median values of question 1 indicate that the panelists thought that RF **catheter ablation** was established in terms of both safety and effectiveness when used as a curative treatment for accessory **pathways** . The panelists had less confidence in the technology in terms of its ability to treat nodal reentrant tachycardias: the rating for safety was promising and...

...all [[chi].sup.2] Goodness-of-Fit Tests were associated with a P value of less than .05. The median values remained unchanged.

Summary

Radiofrequency **catheter ablation** has very quickly generated considerable enthusiasm among electrophysiologists because it offers a less invasive alternative to an open surgical procedure and potentially offers an alternative to lifelong drug therapy. Early literature on RF **catheter ablation** focused on the technical aspects of the procedure. In contrast, the literature of the past several years is dominated by very favorable reports of large series of patients and the experience of individual

institutions. The larger series have focused on the treatment of accessory **pathways** as opposed to AV nodal reentry **pathways** . The opinions of the DATTA panelists parallel the literature. The panelists considered the technology to be established in terms of its safety and effectiveness as a curative treatment of accessory **pathways** , and promising in terms of its safety and between promising and established in terms of its effectiveness as a treatment of AV nodal reentrant tachycardias...

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...DESCRIPTORS: **Ablation** (Surgery
19921021

John Sims EIC 3700 308-4836

16/3,KWIC/27 (Item 7 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

05592946 SUPPLIER NUMBER: 12399671 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Manufacturers. (laser industry) (The 1992 Buyers Guide) (Directory)
Laser Focus World, v27, nSPEISS, p746(155)
Dec 15, 1991
DOCUMENT TYPE: Directory ISSN: 0740-2511 LANGUAGE: ENGLISH
RECORD TYPE: FULLTEXT
WORD COUNT: 139277 LINE COUNT: 11434

... 30.52.78.03 pres/export mgr, J.C. Bullier; tech mgr, J.P. Picault; emp 15, s&e 4, 1980 Manufactures acousto-optic modulators, **deflectors** , modelockers, and tunable filters with accompanying power supplies. Also manufactures polychromatic modulators & **deflectors** , as well as acousto-optic RF spectrum analyzers. Offers grinding and polishing of optical materials and crystals. SALES OFFICES: Aims-Optronics, Kraainem Brussels, Belgium, (32...accelerator targets, beamstripper foils, conductive coatings, rare earths coatings, metallic mirrors, metal foils, pellicles, optical filters, x-ray windows & filters, infrared attenuators, laser and plasma **ablation** targets, nuclear isotopic targets, and specimen mounts & grids for electron microscopy.

Acme Electric Corp, Power Products Group, 20 Water St, Cuba, NY 14727; 716-968...s&e 2, 1985 Fabricates optical components for laser applications, video systems, medical instruments and electro-optical equipment Fabricates and repairs borescopes/ endoscopes (rigid and **flexible**), illumination light sources and fiberoptic light cables.

Amtronics Inc, PO Box 24190, New Orleans, LA 70184; 504-831-0691, FAX 504-831-0969 pres, D...

...FAX 203-242-4472 ch exec, Ernest Hodur; sls mgr, Dick Johnson; emp 110, s&e 22, 1953 Manufactures acousto-optic devices including modulators, beam **deflectors** , Q-switches, and mode-lockers for both OEM & individual applications.

Andonian Cryogenics Inc, 26 Farwell St, Newtonville, MA 02160; 617-969-8010, FAX 617-969...6801; 203-792-8622, FAX 203-790-9832 pres, Willard P. Nelson; sls mgr, Sandi Pascoe; chf eng, Ralph Costa; emp 90, 1922 Manufactures of **flexible** shaft, rotary power tools and accessories. Also makes line of polishing lathes for use in dental and eye laboratories.

Bliley Electric Co, PO Box 3428...216-467-0200, FAX 216-467-5000 sls/mktg mgr, Jim Trolinger Manufactures vacuum equipment including pipe fittings, weld fittings, high-purity vacuum fittings, and **flexible** metal tubing.

Cal Av Labs Inc, 515 B Westchester Dr, Campbell, CA 95008; 408-371-0666, FAX 408-371-0672 pres, Kenneth A. Hirschberg; ch...laser. All silica and PCS fibers for the UV/VIS/NIR and silver hanlide fibers for the MIR to 16 microns. Gascooled delivery devices, ring- **catheterd** for angioplasty, ophthalmic devices spectroscdopic bundles for Thomson scattered, etc. SALES OFFICE: CeramOptic Inc, Enfield, CT, USA, 203-763-4855.

CeramOptec Inc 188 Moody Rd...color separation, and data recording. Also and low-loss laser Q-switches. Performs E/O system development work. Also manufactures pulse selection systems, E/O **deflectors** , **deflection** systems, and noise reduction systems. (see ad p 247, 308, 309)

Conspec AS, PO Box 658, Trondheim, N-7001, Norway; 47-7-516033, FAX 47 ...comp div, Don Allen; emp 170, s&e 50, 1967 Designs & manufactures OEM and custom integrated optic, electro-optic, and acoustic-optic devices including modulators, **deflectors** , Q-switches, and Bragg cells; surface-acoustic-wave devices; single crystals of [LiNbo.sub.3],

[LiTaO.sub.3], [PbMoO.sub.4], BGO, ...S. Baditoi; emp 5, s&e 1, 1967 Manufactures optical benches, rails, mounts, and accessories; film-transport & streak cameras; film & plate holders; spatial fliters; beam **deflectors** and scanners; beam positioners and translation stages; and linear position measuring equipment.

Datascan Inc PO Box 62155, Sunnyvale, CA 94086-9991; 408-241-4806,FAX ...621-1032

ch exec, E.S. Bjornsson; sls mgr, Damien Start; ch laser specs, Eldon Gates, B. Kaelin, G. Senswich; 1978 Manufactures & designs computer-controlled **deflection** , scanning, and imaging systems, power- & temperature-measurement systems, and remote-control systems.

E2 Technology Corp, 4475 Dupont Court, Ventura, CA 93003-7745; 805-644-9544...5 Offers industrial optics including laser focusing/collimating lens, laser beam expander, laser scanning lens, IR lens, beam splitter/combiner, dichroic mirrors/filters, facsimile lens, **flexible** fiber scope, and other customized optics. (see ad p 505, 608, 609)

Fusion UV Curing Systems Corp, (sub of Fusion Systems Corp), 7600 Standish Place...50, s&e 6, 1953 Manufactures laser oriented components, devices and equipment, full R&D facilities. Acousto-optic Q-switches and modulators, tunable filters and **deflectors** . Large elements in crystal quartz, waveplates and polarising prisms. Precision glass engineering, including gyro blocks. Coated optics to arcsecond accuracy. Nonabsorbing energy meter with beam...excimer laser micromachining systems. Complete computer control of all laser and processing parameters for 193 nm, 248 nm, and 308 nm. Large field excimer laser **ablation** systems for high resolution projection patterning of polymers. Unique, high-quality achromatic optics allow through=the-lens alignment and viewing operation.

Image Optics Components Ltd...IL 60104; 708104; 708-547-6644, FAX 708-547-0687 pre, John Lekavich; emp 27, s&e 3, 1975 Manufactures acousto-optic modulators, frequency shifters, **deflectors** , mode-lockers, Q-switches for the UV, visible, near and far infared; a complete line of drive electronics and RF power amplifiers; laser modulation & **deflection** systems. (see ad p 245)

Intronics Inc, 150 Dan Rd, Canton, MA 02021; 617-828-4992, FAX 617-828-5050 vp sls/mktg, Robert Guarnieri...s&e 14, 1956 Manufactures acousto-optic Bragg-cell devices including wide-bandwidth, low-drive-power PbMoO4 modulators; wide-scan-angle, high-resolution TeO2 & Ge **deflectors** ; frequency translators; optical processor cells; and driver electronics for both laboratory & OEM use. Manufactures color-separation scanner systems for the graphic arts industry and laser...gen mgr, Francis L. Mercuri; sls/prod contri mgr, Anthonly Kozerski, Jr. Manufactures high vacuum equipment including cryo & diffusion pumped systems, valves, ISO-KF fittings, **flexible** hoses, controllers, foreline traps, bellows, bell jars and feedthroughs. Also custom designed vacuum chambers, evaporation and sputtering systems, E-beam systems.

Keystone Scientific Co, PO...vp, Gary Spiegel; des eng, B. Espinoza; emp 62, s&e 11, 1970 Manufactures high-precision micropositioning stages and systems for alignment, measurement, and beam- **steering** applications in the areas of laser systems, fiberoptics, and electro-optic technologies. Products include translation, rotation, and elevation stages; beam-**steering** mounts; optical benches, tables, and support accessories; programmable stepping-motor controllers; microscopes and crystal doubling kits.

K and M Electronics Inc, 11 Interstate Dr, West...total of eight axes of beam and part motion for three-dimensional processing; available with [CO.sub.2] or Nd:YAG lasers, and high speed, **flexible** System-84 CNC. Custom laser processing services available.

Laser Ecosse Ltd Kings Cross Rd, Dundee, DD2 3EL, UK; 0382 833377, FAX 0382-833788, telex 76391...

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16/3,KWIC/28 (Item 8 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

05213038 SUPPLIER NUMBER: 11066446 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Radiofrequency current catheter ablation **of accessory atrioventricular pathways.**
Kuck, Karl-Heinz; Schluter, Michael; Geiger, Manfred; Siebels, Jurgen; Duckeck, Wolfgang
Lancet, v337, n8757, p1557(5)
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Radiofrequency current catheter ablation **of accessory atrioventricular pathways.**

Catheter ablation is a new treatment for patients with refractory tachyarrhythmias. The technique was introduced in 1982[1,2] and initial clinical reports were encouraging.[3,4...

...such as lack of energy titration, risk of barotrauma, and the need for general anesthesia, have led to the adoption of an alternative source of **ablative** energy, namely alternating current in the radiofrequency range (30 kHz to 300 MHz). The endocardial application of radiofrequency current to cardiac tissues has none of...
...successful use for the control of supraventricular[5] and ventricular tachycardias[6] have been promising.

For tachyarrhythmias that are mediated by an accessory atrioventricular pathway, **catheter ablation** is especially valuable because of its potential to cure patients without recourse to surgery. For selected anatomical locations of accessory pathways, the direct-current approach...

...10] Case reports have shown the efficacy of radiofrequency current in humans;[11,12] they form the basis for this study of transcatheter radiofrequency current **ablation** in symptomatic patients with accessory pathways at locations throughout both atrioventricular annuli.

Patients and methods

Patients

105 consecutive patients (39 females, 66 males; mean [SD...

...2 patients had permanent junctional recriprocating tachycardia. Drug trials with a median of two antirrhythmic agents (range 1-7) had failed in 90 patients before **ablative** therapy.

Routine electrophysiological investigation before attempted **ablation** was completed in the first 20 patients, but in none of those remaining because it was clear that such information did not influence outcome of electrode **catheter** treatment. All patients were informed about the experimental nature of the **catheter ablation** procedure and gave their consent.

Catheters

For atrial and ventricular pacing, standard 6 French 'USCI' quadripolar **catheters** were positioned in the high right atrium and at the right ventricular apex, respectively. A 6 F USCI hexapolar **catheter** with a 2 mm interelectrode distance was placed so as to record His-bundle activation. For coronary sinus mapping, a 6 F cathether with three sets of

four circumferential electrodes arranged in an othogonal configuration ('Jackman' **catheter** , Mansfield/Webster, Billerica, Massachusetts) was advanced from the left subclavian vein into this vessel. The **ablation catheter** was a standard 6 F quadripolar **catheter** with a distal electrode of 2 mm in the first 13 patients, and a **steerable** 7 F quadripolar **catheter** with a tip electrode of 4 mm (Mansfield/Webster, Billerica, Massachusetts; or Dr Osypka GmbH, Grenzach-Wyhlen, Germany) in remaining patients. In those with a right-sided accessory pathway, the same **catheter** was used for mapping of the tricuspid annulus.

Mapping

Mapping of both atrioventricular rings was completed during orthodromic reciprocating tachycardia or right ventricular pacing, and...

...13] and depends on the direct recording of an accessory pathway potential (fig 1). In case of a left posteroseptal pathway location, mapping for subsequent **ablation** of the left posteroseptal area was repeated at the ostium and along the proximal part of the coronary sinus with a standard 6 F quadripolar or **steerable** 7 F large-tip **catheter** , introduced via the right femoral vein.

Ablation

A custom-built generator supplying unmodulated 300 kHz alternating current at constant preset voltages for variable periods of time was used for accessory pathway **ablation** in the first 13 patients. A 500 kHZ generator ('HAT 200', Dr Osypka GmbH, Grenzach-Wyhlen, Germany) was used in all other subjects; this generator...

...unable to calculate voltage, current, or impedance.

In patients with right-sided accessory pathways, radiofrequency current was applied between the tip electrode of the mapping/ **ablation catheter** and a back-paddle below the patient's left scapula. The **catheter** was introduced via the right internal jugular vein in patients with pathways located on the right anterior (anterolateral, anterior, and anteroseptal) region of the heart, and via the right femoral vein in patients with pathways located on all other right-sided areas of the heart.

For **ablation** of left-sided free-wall accessory pathways, the **ablation catheter** was advanced from the right femoral artery into the left ventricle and positioned high against the mitral annulus, directly opposite the tip electrode of the coronary sinus mapping **catheter** . The procedure has been described in detail before.[12]

In the first 13 patients with a left-sided free-wall accessory pathway, radiofrequency current was delivered between the tip electrode of the left ventricular **catheter** and the coronary sinus **catheter** electrode that had located the accessory pathway. [10-12] In all other patients with a left-sided free- wall accessory pathway (including one repeat **ablation**), radiofrequency current was applied between the tip eletrode of the left ventricular **catheter** and a back-paddle. This "ventricular" approach was also used in 4 patients with a left posteroseptal accessory pathway. In the other 10 patients with a left posteroseptal accessory pathway, radiofrequency current was applied between the tip electrode of the **ablation catheter** , introduced from the right femoral vein and curved towards the bottom of the proximal coronary sinus, and a back paddle.

In patients with the Wolff...

...current was delivered during sinus rhythm or during coronary sinus pacing at a rate slightly above that of the sinus rhythm. Concealed accessory pathways were **ablated** during orthodromic supraventricular tachycardia that allowed indirect assessment of conduction block in the accessory pathway by termination of the tachycardia.

Ablation was thought successful in the electrophysiological laboratory if both antegrade and retrograde accessory pathway conduction was eliminated, or if retrograde conduction through concealed pathways was

no longer present. After successful **ablation** of an accessory pathway, one additional "safety" application was given to minimise the possibility of late recurrence of accessory pathway conduction. In cases of an electrophysiological failure of the **ablation** attempt(s), **ablation** was taken to be a clinical success if accessory pathway conduction was lost spontaneously within three months of the procedure, and the patient was free...

...study.

During the procedure some patients were either sedated with diazepam (5-15 mg) or lightly anaesthetised with fentanyl (0.1-0.5 mg). After **catheter** positioning, a bolus of 100 IU/kg heparin was given intravenously, followed by a second injection of 5000 IU after 4 h.

Follow-up

After **ablation** , the first 50 patients were monitored in the intensive care ward for 48 h. Supraventricular or ventricular arrhythmias were never observed and remaining patients were...

...presented as mean [SD] values. In cases of a non-Gaussian distribution of measured variables, the median value is given instead of the mean.

Results

Catheter treatment with radiofrequency current was aimed at a total of 111 accessory pathways. In 4 patients, two pathways each were subjected to radiofrequency current therapy; 1 patient underwent **ablation** of three pathways. Of the 79 left-sided accessory pathways, 62 were overt (they had consistent antegrade and retrograde conduction properties) and 17 were concealed. Of 32 right-sided pathways, 24 were overt and 8 were concealed.

A total of 131 **ablation** procedures was completed in the 105 patients. 20 patients underwent a single repeat session, and 3 consented to a third attempt at **ablation** . A median of 9 (range 1-53) radiofrequency current pulses were applied per session. Cumulative electrical energy delivered per session ranged from 84 to 31...

...range 1-10.5). Patients' mean radiation exposure time per session was 53.2 min [32.8] (range 1.6-148.2). In each session, **ablative** therapy was directed towards a single accessory pathway, except in 2 patients in whom multiple pathways were destroyed in one session. In all patients, serum creatine kinase activities were within normal limits (< 100 IU/l).

Ablation with the standard-tip electrode **catheter**

In the first 13 patients, 18 **ablation** procedures were completed with a standard-tip electrode **catheter** (fig 2). A mean power of 6.2 watts [2.3] per radiofrequency current pulse was applied for 17.6 s [3.9]. Abolition of accessory pathway conduction was achieved in 4 patients (31%). 3 patients underwent a successful repeat **ablation** attempt with the large-tip electrode **catheter** , and 1 patient is scheduled for repeat **ablation** . 7 of 13 patients had a successful outcome of electrical **ablative** therapy.

Ablation with the large-tip electrode **catheter**

In 92 patients, the initial attempt at accessory pathway **ablation** was completed with the large-tip electrode **catheter** (fig 3). Successful radiofrequency current application led to accessory pathway conduction block within 3 s of onset of radiofrequency current (fig 4); this was associated...

...in a single session in 79 patients (86%), and in two sessions in a further 6 patients; 1 patient required three sessions. In 2 patients, **catheter ablation** was unsuccessful, but both became free of arrhythmia-related symptoms because of spontaneous development of accessory pathway conduction block within three months of the **ablation** procedure. Another 2 patients are scheduled for a repeat attempt at **ablation** . Of 105 patients, 93 (89%) underwent successful **catheter ablation** of their

accessory pathway(s) with radiofrequency current.

Posteroseptal vs free-wall accessory pathways

Of successfully **ablated** pathways, 66 were located on the left and right ventricular free walls (57 and 9, respectively), while 20 (10 left, 10 right) were posteroseptal pathways was applied (8340) joules vs 3080 joules; $p < 0.05$) to permanently interrupt posteroseptal pathway conduction. Successful **ablation** of a posteroseptal accessory pathway lasted significantly longer than for a free-wall accessory pathway (4.9 h [1.5] vs 3.7 h [1...

...into ventricular fibrillation. The patient refused further surgical therapy and was discharged on antiarrhythmic medication.

Complications and follow-up

In a 10-year-old girl, **ablation** was terminated before successful accessory pathway block because of thrombotic occlusion of the right femoral artery. Thrombectomy was completed successfully with a Fogarty **catheter** . In another patient,a fistula between the femoral artery and vein at the site of puncture in the right groin was found one day after repeat **ablation** . The fistula caused no symptoms, but was surgically corrected. 1 early patient received 15 radiofrequency current applications that failed to **ablate** a left lateral accessory pathway; two direct-current shocks of 200 J each caused conduction block in that pathway. A third direct-current shock (200...

...patient survived after emergency cardian surgery.

During a median follow-up of 7.5 months (range 1-43), most patients with a successful outcome of **ablative** therapy had experienced no recurrences of arrhythmia. 1 patient is being treated with sotalol for ventricular ectopy (present before **ablative** therapy), and another is being treated with prajmaline. All other patients are free of both antiarrhythmic medication and symptoms. Accessory pathway conduction recurred in 3...

...a delta wave was noted on the patient's electrocardiogram 24 h after an initially successful repeat procedure and he underwent a third attempt at **ablation** , which resulted in permanent abolition of the pathway. In another patient, atrioventricular tachycardia recurred after three months and he underwent a successful repeat session. The third patient had been free of symptoms since repeat **ablation** , but a delta wave was recorded at his one-year follow-up visit. He is presently scheduled for a further attempt at **catheter ablation** . Echocardiography in all other patients showed no cardiac abnormalities and 12-lead electrocardiograms were normal.

Discussion

Our study shows that **ablation** of accessory atrioventricular pathways can be achieved by **catheter** -induced radiofrequency current, irrespective of the electrophysiological characteristics and anatomical site of the pathway. The approach is effective and safe and may definitively cure symptomatic...

...the Wolff-Parkinson-White syndrome may eventually become obsolete. However, follow-up data are needed for an evaluation of the long-term efficacy of the **catheter** approach.

Three prerequisites had to be fulfilled to make **catheter ablation** by radiofrequency current successful. First, the precise localisation of the accessory pathway was made possible through improved **catheters** that allow direct recording of accessory pathway potentials. [17] Radiofrequency current delivery to these sites almost always leads to immediate conduction block within the accessory...

...is the ventricular insertion in left-sided, and the atrial insertion in right-sided, accessory pathways. [13] This finding has led to placement of

an **ablation catheter** inside the left ventricle directly below the mitral annulus in patients with left-sided accessory pathways, so as to interrupt the ventricular insertion of the accessory pathway. Conversely, the **ablation catheter** is placed at the atrial aspect of the tricuspid annulus in patients with right-sided accessory pathways so as to interrupt the atrial insertion of the pathway.

Finally, the advent of specialised **catheters** with a **flexible** end that can be freely **manoeuvered** from the outside have allowed easier and more precise positioning along annuli. The large-tip electrode of these **catheters** also allows delivery of higher electrical energies into the cardiac tissue and, consequently, in this study a significantly higher success rate was found when **ablation** was attempted with the large-tip rather than the standard-tip electrode **catheter** . Similar results have been reported in studies with radiofrequency current for **catheter ablation** of atrioventricular nodal conduction in patients with various supraventricular arrhythmias. [20]

The main advantage of radiofrequency over direct current is that energy delivery can be rate is low. The frequency of late complications after radiofrequency current **catheter ablation** is unknown--eg, damage to atrioventricular valves and coronary arteries located close to the accessory pathway. Although such potential complications have not been important in laboratory animal experiments, [10] careful long-term observation of patients is required. For instance, thrombus formation has been reported after direct-current **catheter ablation** . [14] Previous studies in animals have shown thin fibrin layers at almost all sites of radiofrequency current delivery, but never extensive thrombi. [10] Nevertheless, patients at our institution are fully heparinised during the procedure and treated with acetylsalicylic acid for three months thereafter. Radiofrequency current **catheter ablation** may become the treatment of first choice for symptomatic patients with tachyarrhythmias related to an accessory pathway and may even be considered as a prophylactic therapy in some individuals.

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ADDRESS: Department of Cardiology, University Hospital Eppendorf, 2000 Hamburg 20, Germany (K-H. Kuck, MD, M. Schluter, PHD, M. Geiger, MD...
CAPTIONS: **Catheter ablation** in the first 13 patients. (chart); **Catheter ablation** in 92 patients. (chart)

...DESCRIPTORS: **Ablation** (Surgery...

... **Catheterization** --
19910629

16/3,KWIC/29 (Item 9 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

04634242 SUPPLIER NUMBER: 08305519 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Catheter **and surgical treatment of cardiac arrhythmias.**
Scheinman, Melvin
JAMA, The Journal of the American Medical Association, v263, n1, p79(4)
Jan 5, 1990
ISSN: 0098-7484 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT; ABSTRACT
WORD COUNT: 3745 LINE COUNT: 00334

Catheter **and surgical treatment of cardiac arrhythmias.**

...ABSTRACT: require the chest to be open and the heart directly explored, but in some the surgery can be carried out by the use of a **catheter** . A **catheter** is a relatively small **flexible** tube which is advanced into the heart by threading it through the vascular system from its point of entrance, a needle placed through the skin...

...destroying the normal internal regulation of the heart beat so that artificial means such as a pacemaker can become effective. Although open heart surgery and **catheter ablation** methods remain new and are not yet fully developed, their place in the care and treatment of some patients is well established.

TEXT:

Catheter and Surgical Treatment of Cardiac Arrhythmias OVER the past decade, there have been remarkable advances in the use of non-pharmacologic treatment modalities for patients with serious cardiac rhythm disturbances. (1) In this article, I will focus on the use of **catheter** or surgical techniques for control or cure of patients with cardiac arrhytmias that are resistant to traditional medical therapy. Although device therapy (antitachycardia pacing and...

... direct dissection or cryoablation. These procedures proved reasonably safe, with operative mortality of approximately 5% and 90% efficacy. (2,3) Since 1982, a closed-chest **catheter** procedure has been introduced, which obviated the need for surgery for these patients. (4,5) The **catheter** procedure involves pervenous insertion of a multipolar electrode **catheter** across the tricuspid valve to record the largest unipolar **deflection** of the bundle of His. High-energy DC shocks are then delivered from the distal electrode of the **catheter** (cathode) to an indifferent patch placed over the left scapula (Figure). The remarkable safety and efficacy of this technique for patients has been recently described in a report of the worldwide Percutaneous Cardiac Mapping and **Ablation** Registry. (6) Results from this worldwide registry of 552 patients undergoing attempted atrioventricular junctional **ablation** reveal that 85% achieved tachycardia control, while only two procedure-related deaths were reported. Long-term follow-up has revealed a 1.5% incidence of sudden deaths for these patients.

The obvious drawback of these surgical or **catheter** techniques involves complete disruption of the atrioventricular conduction system and the necessity for permanent cardiac pacing. Attempts to modify atrioventricular conduction without complete disruption of...

...arrhythmia control in 85% to 90% of patients without sacrifice of the atrioventricular conduction system or need for permanent cardiac pacing. (9,10) More recently, **catheter** techniques have been introduced to accomplish the same results. These techniques involve delivery of high-energy DC shocks in the region of the atrioventricular node to disrupt the tachycardia circuit while preserving atrioventricular conduction. (11,12) Potential drawbacks of the **catheter** technique include initiation of transient atrial arrhythmias, which occurred in 30% of patients in one series. (12) Chronic complete atrioventricular block occurred in 10% of patients in another report. (11) Although experience to date with the **catheter** technique is limited, a trial of **catheter** modification of the atrioventricular node prior to complete **catheter ablation** or perinodal surgery would appear to be reasonable for those with atrioventricular nodal reentrant tachycardia refractory to medical therapy.

TACHYCARDIAS INVOLVING
ACCESSORY BYPASS TRACTS
The...

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...accessory pathways. In addition, detailed epicardial mapping adjacent to the cardiac annulus is required for precise pathway localization. Currently, two surgical techniques are used for **ablation** of these pathways. The traditional approach involves dividing the pathway(s) using an endocardial incision and extending the dissection to the epicardial reflectionon the ventricle...

...with long-term medical therapy. These considerations are particularly important for adolescents with ambivalent feelings about long-term oral therapy or for women planning pregnancies.

Catheter ablative procedures have also become available for selected patients with accessory pathway-mediated tachycardia. Initial attempts to **ablate** left free-wall pathways via the coronary sinus proved to be generally ineffective and were associated with the risk of cardiac tamponade owing to disruption of the thin-walled coronary sinus. (16) Morady et al (17) introduced a **catheter** technique for patients with posteroseptal accessory pathways. In this technique, a quadripolar electrode **catheter** is inserted into the root of the coronary sinus and positioned so that the proximal electrodes are just outside the coronary sinus. The proximal electrodes sequelae (apart from need for long-term pacing in one patient) were noted. More recently, Warin et al [18] reported remarkable success using **catheter ablative** techniques in patients with both septal or free-wall accessory pathways. These investigators introduced an approach to left free-wall pathways by means of transseptal **catheterization** . The electrode **catheter** is positioned adjacent to the area of earliest atrial activation and one or more shocks are delivered to **ablate** the atrial insertion site of these pathways. If their remarkable results can be replicated by other laboratories, this may indeed totally revolutionize our approach to...

...these patients are children or young adults with incessant tachycardia, which may lead to development of cardiomyopathy. These patients can be treated by surgical or **catheter** disruption of the atrioventricular junction, but the latter approach mandates the need for permanent cardiac pacing. Current surgical procedures include direct extirpation of the arrhythmia...

...be the procedure of choice, since other atrial arrhythmic foci may arise with time. Very limited experience is currently available with regard to use of **catheter** techniques for **ablation** of atrial foci. [21,22]

VENTRICULAR TACHYCARDIA

Surgical **ablation** of ventricular tachycardia foci is currently a well-accepted therapeutic modality for patients with drug-resistant arrhythmias. Surgical candidates must undergo detailed anatomic and electrophysiological...

...If the patient is hemodynamically stable during induced tachycardia, endocardial mapping is undertaken to locate the site of origin of the arrhythmia. During tachycardia, electrode **catheters** are manipulated so as to record endocardial potentials from as many ventricular sites as possible. The 12-lead electocardiograms are recorded during overdrive ventricular pacing...

...ventricular tachycardia is again induced and detailed endocardial mapping is used to locate the arrhythmogenic focus. A variety of surgical procedures have been introduced for **ablation** of ventricular tachycardia focus, including subendocardial resection, [28] cryoablation, [29] or laser photocoagulation. [30] In addition, a variety of techniques that do not require endocardial...

...well-defined aneurysm in the anteroapical area.

Only patients with sustained (>30 seconds) symptomatic ventricular tachycardia resistant to drug therapy should be considered for an **ablative** procedure. **Catheter ablative** techniques have been used for patient with ventricular tachycardia since 1983. [34] Endocardial mapping is undertaken as described above. Once the arrhythmogenic site has been identified, an electrode **catheter** is manipulated as close as possible to this area and one or more high-energy DC shocks are applied between the electrode **catheter** (cathode) and an indifferent patch (anode) placed against the chest wall. For patients with foci located in the ventricular septum, percutaneously introduced **catheters** may be positioned on each side of the septum to bracket the tachycardia focus. Shocks may then be delivered between electrode **catheters** to **ablate** the septal focus. [35]

The efficacy of **catheter ablation** for ventricular tachycardia has shown wide variability among different laboratories. [36-40] The largest reported series is from the Percutaneous Cardiac Mapping and **Ablation** Registry [6] and includes data on 164 patients who underwent attempted **catheter ablation** for ventricular tachycardia. Tachycardia control without need for antiarrhythmic agents was achieved in 18%, while 41% achieved arrhythmia control but required antiarrhythmic therapy. The procedure...

...and myocardial perforation (5%) have been reported. It should be emphasized that many of these patients were almost moribund owing to incessant tachycardia prior to **ablation** . A small but important subcategory of patients with ventricular tachycardia, namely, those patients with reentry involving the bundle branches, may be cured by **catheter ablative** techniques. The treatment of choice for this arrhythmia involves selective **ablation** of the right bundle branch. [41,42] This procedure can be accomplished with relative ease and without significant morbidity. At this juncture, **catheter ablation** for patients with ventricular tachycardia (apart from those with bundle branch reentry) must be considered highly experimental, to be performed only at centers very experienced in invasive electrophysiological trocedures. Possible candidates for **catheter ablative** procedures include patients with frequent episodes ...the automatic internal cardioverter defilbrillator.

SUMMARY AND

FUTURE DIRECTIONS

Tachycardia cure without need for ancillary drug or pacemaker therapy is the goal of surgical or **catheter ablative** techniques. Unfortunately, tachycardia cure is currently available only for a relatively small subset of patients with supraventricular tachycardia (namely, those with atrioventricular nodal reentry or those with atrioventricular reentry $(bypass tract mediated$) and for selected patients with monomorphic ventricular tachycardia $(Table$)). Tachycardia control (by means of **catheter ablation** of the antrioventricular junction) is more widely practiced for patients with drug-resistant atrial fibrillation, since no reliable surgical or **catheter ablative** procedure exists for maintenance of sinus rhythm. Tachycardia control may be achieved in these patients, but only at the expense of sacrificing the normal conduction...

...Newer energy delivery systems including use of radio-frequency energy [42] or short-duration nonarcing DC pulses [43] promise to provide safer delivery systems for **catheter ablation** . Newer surgical procedures promise hope for achieving sustained sinus rhythm in patients with atrial fibrillation or flutter. [44,45] Although surgical or **catheter** procedures for patients are still in their relative infancy, they nevertheless have achieved an important place in our therapeutic approach to patients with refactory cardiac...

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CAPTIONS: Schema of **catheter ablative** procedure. (chart); **Catheter** vs surgical control of arrhythmias. (table)

...DESCRIPTORS: Cardiac **catheterization** --
19900105

16/3,KWIC/30 (Item 10 from file: 148)
DIALOG(R)File 148:Gale Group Trade & Industry DB

03940912 SUPPLIER NUMBER: 07679133 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Evaluation and percutaneous management of atherosclerotic peripheral vascular disease. (Topics in Radiology - Diagnostic Radiology) (column)
Widlus, David M.; Osterman, Floyd A., Jr.

JAMA, The Journal of the American Medical Association, v261, n21, p3148(7)
June 2, 1989
DOCUMENT TYPE: column ISSN: 0098-7484 LANGUAGE: ENGLISH
RECORD TYPE: FULLTEXT
WORD COUNT: 5380 LINE COUNT: 00472

TEXT:

...to be effective in relieving symptoms and to be durable with the passage of time. Postoperative morbidity, rising health care costs, and refinement of percutaneous **catheter** technology have led to the development and use of nonsurgical modalities for the management of PVD. [n5] Patient acceptance of nonsurgical, percutaneous procedures such as...
... cellular hyperplasia, and calcium. [n12-n14] The plaque may be eccentric or may narrow the lumen concentrically. It may be focal, diffuse, or intermittent. The **lesion** may grow slowly or may rapidly occlude the lumen owing to hemorrhage within the plaque or thrombus formation across the area of narrowing. The latter...

...is the mainstay of nonoperative arterial recanalization. [n16] This modality gained popularity in the United States with the development of the double-lumen balloon angioplasty **catheter** by Gruntzig and Hopff in 1974. [n17,n18] The foremost technical necessity in PTA is the ability to **maneuver** a guide wire across the area of stenosis or occlusion. An inability to do this has resulted in a technical failure rate for iliac and femoral PTA of 15% to 50%. [n19-n26] Recent **catheter** and guide-wire modifications have markedly decreased this problem. Balloon inflation causes a "controlled injury" to the vessel wall, increasing the luminal diameter. [n12-n14...

...a 3-year patency rate of 70% to 100%. [n41-n44] Iliac dilation is often divided into procedures performed for stenosis vs occlusion. For all **lesions** , a primary success rate of 84% to 95% can be expected. Follow-up study for 3 to 7 years shows a continued patency rate of...the underlying short-segment stenosis or occlusion can be uncovered. Angioplasty of this area will yield similar results to those seen with initial short-segment **lesions** . [n54,n64-n67]

Eccentric plaque formation and calcified plaque are two additional pathological features that decrease the efficacy of PTA. [n55] Balloon angioplasty works by...

...energy through small optical fibers that make intravascular use feasible. In vitro research has confirmed that laser radiation in the infrared and visible ranges can **ablate** atherosclerotic plaque. [n68-n73] Based on these studies, the argon laser has emerged as the most widely used energy source with open-fiber vascular recanalization...

...fiber, depending on the metal probe size, and uses either an argon or neodymium:yttrium-aluminum-garnet energy source. The hot metal probe seeks the **path** of least resistance, which is the vascular residual channel surrounded by plaque (Fig 1). Eccentric plaque, particularly that which is calcified, may force the laser...

...also being tested. These systems attempt to decrease the perforation rate by limiting the amount of laser energy the normal arterial wall encounters.

Once the **lesion** is crossed, an angioplasty **catheter** can be advanced through the small irregular laser channel for subsequent balloon dilation (Fig 1, right). The angioplasty is essential to establish a satisfactory lumen; however, the current guide-wire tracking probes can be passed through the **lesion** successive times so that additional plaque can

be removed, possibly creating an adequate lumen without the need for PTA.

An argument for plaque removal is...

...animal models have yet to be developed. Comparative data on therapeutic efficacy of a particular modality are hard to interpret given the complexity of the **lesions** being treated and the simplistic angiographic criteria used to describe them.

Atherectomy

Restenosis following balloon angioplasty has some correlation with the degree of residual narrowing...

...dilation. [n55] The notion of removing plaque from the treated artery to reduce the likelihood of recurrence has led to the development of the atherectomy **catheter** (Fig 2). The Simpson atherectomy **catheter** , now approved by the Food and Drug Administration, can be inserted percutaneously for management of arterial atherosclerotic stenoses and occlusions. [n82-n85] The atherectomy portion of the Simpson **catheter** consists of a steel cylinder with a longitudinal opening on one side and a low-pressure balloon on the other. When the balloon is inflated...

...in a distal collecting chamber. The entire assembly is withdrawn when the collection chamber is full of atherosclerotic plaque and the samples are removed. The **catheter** can then be reinserted through an indwelling arterial introducer sheath, usually in the common femoral artery, and further **lesion** debulking can be performed. The leading distal tip of the atherectomy **catheter** has a small, **flexible** guide wire that is used to **maneuver** through stenotic **lesions** . Atherectomized samples (Fig 2) are evaluated microscopically. Portions of intima, internal elastic lamina, and media are often seen in the average specimen. Percutaneous **catheter** atherectomy has, in our experience, been a reliable method of reestablishing normal blood flow through stenotic and occluded segments of superficial femoral arteries. Subintimal and medial vessel-wall dissection, intraluminal debris, and residual plaque, often seen on angiography following PTA, have not been seen following atherectomy.

The Simpson atherectomy **catheter** has been approved for use in the United States for less than 1 year. Therefore, only preliminary results are available. We have had a 95...

...a scaffold, the intravascular stent may allow primary recanalization of long-segment, eccentric, and calcified stenoses and may prevent recurrent stenoses in these high-risk **lesions** . [n86-n91] Initial laboratory and clinical trials with several stainless steel-alloy intravascular stents have shown that they quickly become endothelialized, preventing the thrombosis often...

...For short-segment concentric iliac and femoral artery stenoses or occlusions, PTA represents the optimal mode of nonoperative therapy. Other modalities such as lasers, atherectomy **catheters** , and intravascular stents may play a significant role in managing those **lesions** not adequately dealt with by the balloon. Time will tell which of these new technologies proves most beneficial in which situations. Certainly though, this is...Katheter: Modifikation der Dotertechnik. Dtsch Med Wochenschr. 1974;99:2502-2504.

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Set     Items   Description
S1         14   AU='WOODARD R E'
S2          8   E3,E4
S3         31   AU='BERUBE D':AU='BERUBE DANY'
S4         46   S1:S3
S5       6200   ABLAT?
S6      27491   CATHETER?
S7         27   S4 AND S5:S6
S8     509429   FLEXIB?
S9    2662643   STEER? OR GUIDE? OR DIRECTION? OR MANEUVER? OR MANOEUVER?
S10          6   S7 AND S8 AND S9
S11        118   S5 AND S6 AND S8 AND S9
S12        114   S11 NOT S4
S13     173174   DEFLECT?
S14         18   CONTINUOUS()LESION?
S15         23   S12 AND S13
S16          1   S12 AND S14
S17         23   S15 NOT S16
S18         21   S17 AND PY<2003
? show files
File 347:JAPIO Oct 1976-2003/Jul(Updated 031105)
         (c) 2003 JPO & JAPIO
File 350:Derwent WPIX 1963-2003/UD,UM &UP=200374
         (c) 2003  Thomson Derwent
File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.
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? ds

Set      Items   Description
S1           6   AU='WOODARD ROBERT E'
S2          10   AU='NGUYEN HIEP':AU='NGUYEN HIEPHOA T'
S3           9   AU='BERUBE DANY'
S4          19   S1:S3
S5        4250   ABLATION OR ABLATE? ? OR ABLATING
S6       10911   CATHETER? ? OR CATHETERIS? OR CATHETERIZ?
S7         475   S5(S)S6
S8      155688   FLEXIB?
S9         330   S7 AND S8
S10      16888   STEERING OR STEERAB?
S11        134   S9 AND S10
S12      45887   DEFLECT?
S13         15   CONTINU?()LESION? ?
S14          8   S11 AND S13
S15         89   S11 AND S12
S16          7   S12 AND S14
S17        242   (ADDITIONAL OR SECOND OR ANOTHER OR EXISTING)(3N)LESION?
S18          6   S15 AND S17
S19          4   S18 NOT S16
S20         12   S14 OR S16 OR S18
? show files
File 348:EUROPEAN PATENTS 1978-2003/Nov W02
         (c) 2003 European Patent Office
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Set      Items   Description
S1       33705   CATHETER?
S2        8778   ABLAT?
S3      159063   STEER? OR DEFLECT?
S4       25981   LESION? ?
S5      357881   PATH OR PATHS OR PATHWAY? ?
S6       61817   MANEUV? OR MANOEUV?
S7     1030307   FLEXIB?
S8      233488   PARALLEL?
S9      214607   S3 OR S6
S10        202   S1 AND S2 AND S7
S11         58   S10 AND S9
S12       1846   S4 AND S5
S13         13   S10 AND S12
S14         67   S11 OR S13
S15         34   RD (unique items)
S16         30   S15 AND PY<2003
? show files
File  16:Gale Group PROMT(R) 1990-2003/Nov 19
         (c) 2003 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2003/Nov 20
         (c)2003 The Gale Group
File 621:Gale Group New Prod.Annou.(R) 1985-2003/Nov 20
         (c) 2003 The Gale Group
File 441:ESPICOM Pharm&Med DEVICE NEWS 2003/Nov W3
         (c) 2003 ESPICOM Bus.Intell.
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Set     Items   Description
S1     390103   CATHETER?
S2     153559   ABLAT?
S3     167639   STEER? OR DEFLECT?
S4    1244731   LESION? ?
S5    1532440   PATH OR PATHS OR PATHWAY? ?
S6      74309   MANEUV? OR MANOEUV?
S7     456307   FLEXIB?
S8    1011790   PARALLEL?
S9     239479   S3 OR S6
S10       260   S1 AND S2 AND S7
S11        33   S10 AND S9
S12     47150   S4 AND S5
S13         2   S10 AND S12
S14        35   S11 OR S13
S15        22   RD (unique items)
? show files
File   2:INSPEC 1969-2003/Nov W2
         (c) 2003 Institution of Electrical Engineers
File   5:Biosis Previews(R) 1969-2003/Nov W3
         (c) 2003 BIOSIS
File   6:NTIS 1964-2003/Nov W3
         (c) 2003 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2003/Nov W2
         (c) 2003 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2003/Nov W3
         (c) 2003 Inst for Sci Info
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  73:EMBASE 1974-2003/Nov W3
         (c) 2003 Elsevier Science B.V.
File 155:MEDLINE(R) 1966-2003/Nov W2
         (c) format only 2003 The Dialog Corp.
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